SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI January, 1967 No. 1

DBG photo

"Birdcage" of dried *Oenothera deltoides*. See page 11.

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Flora Society, Inc., sponsors of the Desert Botanical Garden of Arizona. P. O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXI JANUARY, 1967 No. 1

Arizona Cactus and Native Flora Society

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Including Week-ends and Holidays

Editor's Notes

1967 has arrived and we are all looking forward to another year of exciting activities and progressive growth of the Garden and the Saguaroland Bulletin.

This issue has two guest writers and more are expected monthly. We will continue the articles on desert wildflowers, desert shrubs and trees, Arizona cacti and add Mexican cacti showing the plant and its habitat. These articles will continue to be written by our horticulturist — John Weber, assistant editor — Lillian Diven and your editor. We also plan on publishing monthly photos of well-landscaped gardens. Several new species of succulents will also be included in the 1967 format.

The CACTOMANIACS are a most interesting group that have met at the Garden on the first Tuesday of each month, from Oct. to May since 1949. They have no dues or officers but Charlie Mieg has been their Chief Cactomaniac since its inception. Sixty to a hundred members attend monthly to participate in the good programs. This year's program committee is composed of Dr. Lake Gill, Mrs. Verjean Houck and Fred Baselt.

The group is our mainstay for volunteers in the Annual Cactus Shows. Those persons interested in desert plants are urged to attend these meetings. The December meeting was another fine annual affair in which about twenty members showed ten to fifteen of their unusual Kodachrome slides taken in 1966. Mrs. Esther Rasnick and daughter Barbara filled the room with five buckets of vivid roses grown in their garden. Mr. and Mrs. E. H. Schrieber filled the members with home-made cookies.

The ORCHID SOCIETY of ARIZONA meets the third Tuesday of each month in the Garden's Auditorium. Mrs. Theodore Rehm was president last year and the group had a most successful financial year and participated in several shows and plant sales. Dr. Albert J. Harris is their president for 1967 and an educational program relative to Orchids along with regular activities is assured this year to its members and visitors.

The TWENTIETH ANNUAL CACTUS SHOW will be held this year Feb. 19th to 26th in the Garden's Auditorium. The Show is again co-sponsored by the Phoenix Gazette with the co-operation of Lowell Parker, Managing Editor and Dick Jones, Promotional director, who in the past has given the shows excellent publicity.

Several changes have been made in the Classification list this year that is included with this issue: — All entries in Cacti and Succulents should be NAMED. Divisions have been rearranged in the Arrangements for the inclusion of Corsages, Miniatures and Junior entries. One entry only is allowed in each Division of Arrangements. Sweepstakes will be awarded only to the total of blue ribbons won by an exhibitor. All Art entries should be entered by 5 P.M. Wed. Feb. 15th. All other entries have to be entered by 4 P.M. Sat. Feb. 18th. As usual, there is no entry fee.

CISSUS TRIFOLIATA L. Fam. Vitaceae

Arizona Cissus

DBG photo

Tendrils and succulent leaves of *Cissus trifoliata.*

Cissus trifoliata is a succulent member of the Grape Family that is quite unlike those members of the genus found in most succulent collections. It is vine-like in habit, arising from large tubers, and having thin non-succulent stems. These trailing or entwining stems have smooth bark and bear coiled tendrils. The tubers, as well as other portions of the plant, are reported to be poisonous. Leaves are succulent, being quite thick and fleshy, and have an alternate disposition along the stem. They are trifoliate or, more often, trilobate in form and are glabrous. When the leaf is divided, the leaflets are lance-ovate in shape and coarsely dentate, the teeth being from 5 to 15 mm. apart. Leaflets measure 1 to 5 cm. in width and 2 to 9 cm. in length. Flowering occurs from July through September. The flower parts are four in number, the petals are separate and spreading. Very small greenish-white flowers occur on fruiting branches which soon turn red. The purple-black, inedible berry has from one to four seeds and is globose. It measures 5 to 9 mm. in diameter. The seed is small and has a bony seed coat.

The distribution of **Cissus trifoliata** is extensive, ranging from south-central Arizona south into Mexico and into tropical America. In Arizona it is uncommon, and is found at elevations ranging from 915 to 1525 meters in Gila, Pima and Santa Cruz Counties. It is a plant of stream bed and canyon situations, growing among rocks and up into bushes and trees. In Mexico it is reported from Baja California, Sonora, Chihuahua, Coahuila, Colima, Oaxaca and Yucatan.

Only limited use of the species has been made for landscaping purposes, yet it creates an interesting design pattern when employed on or against rock walls and fences. Contact dermatitis may result from handling the plant, and this, coupled with the poisonous properties of the plant, limit its recommendation for the succulent garden.

REFERENCES:

Kearney & Peebles, ARIZONA FLORA
Standley, P. C., TREES AND SHRUBS OF MEXICO.

DBG photo

Cissus fruit, approximately one-quarter inch diameter.

OPUNTIA CHLOROTICA CACTACEAE

Clock-face Prickly Pear

DBG photo

An upright O. Chlorotica 4′ tall growing west of Wickenburg, Ariz.

Opuntia chlorotica (L., greenish-yellow) is an outstanding arborescent prickly pear growing up to six feet tall and three to four feet wide in the open desert. In woodland areas it will remain bushy, close to the ground, sometimes growing up to two feet tall.

This plant readily hybridizes with **Opuntia engelmanni, O. phaeacantha, O. macrocentra** and **O. santa-rita,** producing plants that have extra-heavy clusters of yellow spines and glochids in their areoles.

O. chlorotica has a scattered distribution through the southern half of Arizona from the Mexican border to the Mogollon Rim country at elevations from 500 to 7000 feet.

The pads or joints are circular, about six to eight inches in diameter, bearing areoles spaced about one inch apart, which are filled with one to six short deflexed spines and numerous yellow glochids three-sixteenths of an inch long, giving the pad the appearance of being matted.

This sparse-flowering plant has a few lime-yellow flowers during late April through May. The purplish fruits are one inch in diameter and have green flesh and one-eighth-inch yellow flattened seeds. Both are eaten by cattle, deer, sheep, javelinas, rodents and birds during late June and July.

This is an easy plant to grow from the pads, or from branches of several pads. It is a good background plant for landscaping purposes. Care should be taken in not placing the plant too close to driveways or sidewalks, as its numerous spines will "tickle" inquisitive fingers.

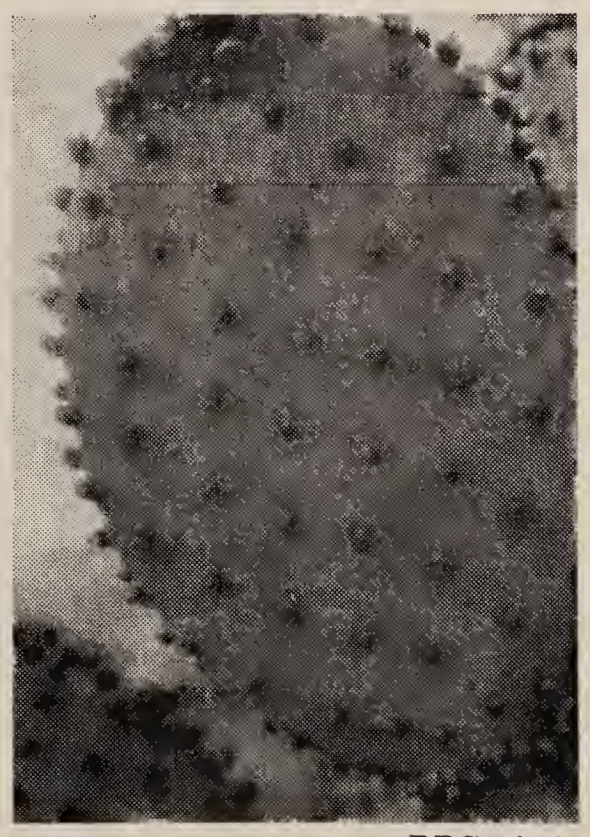
TYPE LOCALITY: On both sides of the Colorado River from Grand Canyon to the mouth of the Bill Williams River in Arizona.

DISTRIBUTION: New Mexico, Arizona, Nevada, eastern California and northern Mexico.

REFERENCES:

Benson, L., THE CACTI OF ARIZONA

Earle, W. H., CACTI OF THE SOUTHWEST.



DBG photo

Close-up of an O. chlorotica pad 4″x6″ showing the heavy tufted areoles.

"THANK YOU FOR LETTING US COME . . ."

Every year, four thousand school children, in groups of a dozen to sixty or more, come to the Garden. Schools, scout groups and clubs arrange the visits beforehand, and the usual procedure is for the teachers and their assistants to take the children through our Nature Walk, but your Editor sometimes finds time to join our young visitors.

The letters we receive from school children are warm and spontaneous, even when they are part of a class assignment, and a lot more honest than letters grown-ups might write. A few things are predictable: the "Old Man" cactus is always a favorite, and so are the insect displays in our Auditorium (with the boys!) — but even here there are some surprises.

This past November sixty fourth-graders from Sevilla School in Phoenix came, (with their teacher Mrs. Charles Ream) saw, and wrote to us. We'd like to share bits from some of their letters with you:

"Thank you for letting us come and see the cacti. I imagine you put lots of work into them. And you did a good job, too. The Old Man of the Desert needed a nose, mouth, eyes, and he would come to life." —Teresa U.

"Thank you for the time you spent with us. I think you have a nice garden. I bet you have a hard time keeping weeds out of the cactus. The best cactus I like was Old Man of the Desert. But when we were on the hike we called them grannys." —Tim H.

"I liked the Grandfather cactus. There is a boy in our room called Ricky Oldfather. We always think of him when we see the cactus." —Steve R.

"The best thing I liked was the Old Man of the Desert. I called it "Cousin It." I didn't know that woodpeckers lived in the saguaro cactus."—Karen R.

"I really needed to learn so much because we are going to have a test on it." —Rusty C.

"From everything I saw there I found out something: how a desert grows. Everything looks well kept and nice."—Ann K.

"Thank you for letting us come. I learned things I never knew before." — Steve L.

"Thank you for telling me about mountains, too, and how they were made. And you taught me a lot." — Jolynne K.

"Thank you for letting us see all the cacti and the plants and flowers and letting us go into the building and see the stuffed Gila monster and the tarantula and the beatles and the Indian rugs." —David M.

"I enjoyed it very much and I liked the different plants, too. I learned a lot, too. You are a very nice man. I liked the bugs."—Steven B.

"I didn't get to come because I had a bad cough and I am very sorry I could not come. I came once before, anyway my mother said so, and I even forgot how it looks. I hope I can come there very very soon again." —Rena M.

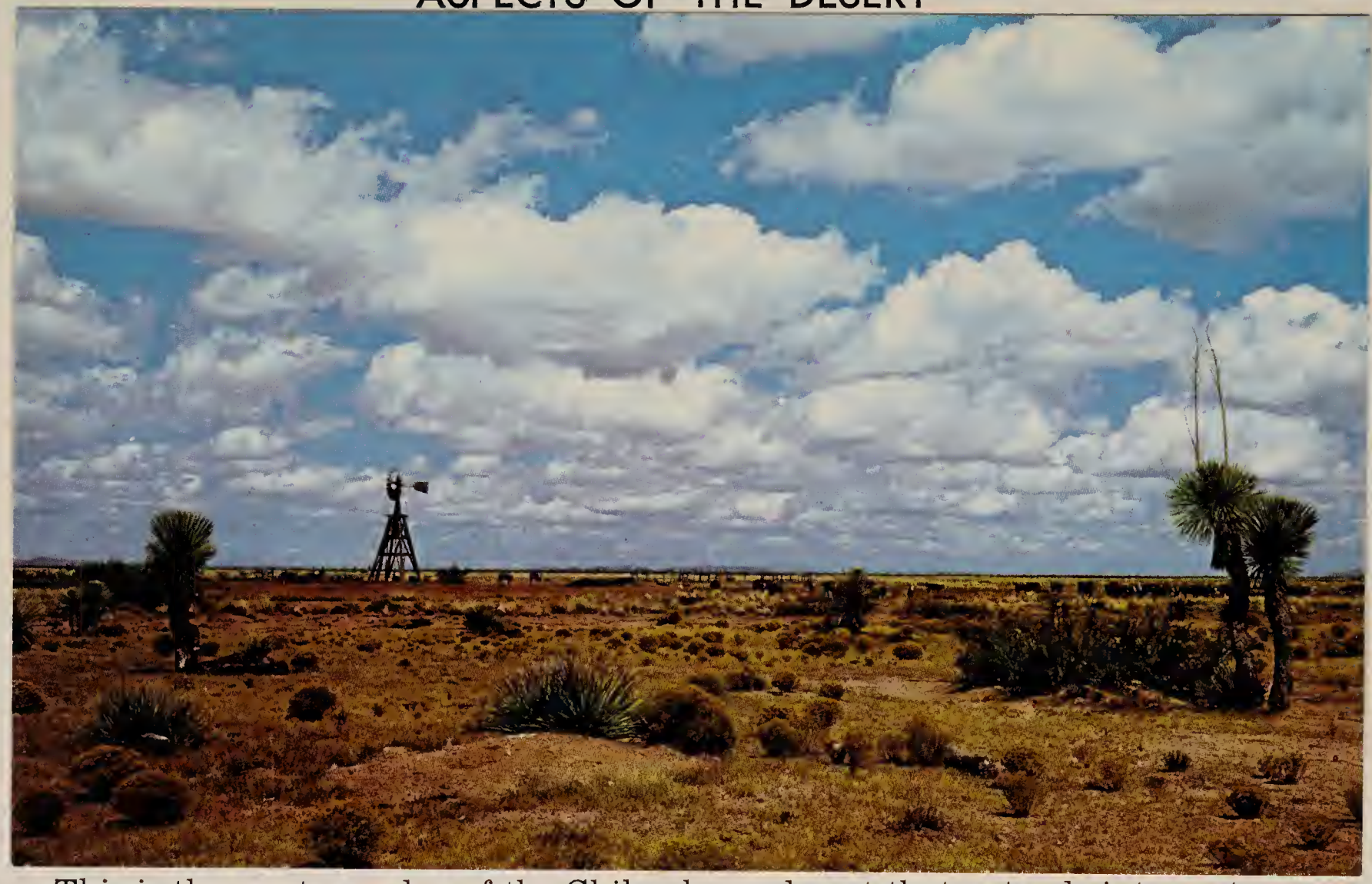
"I like the skeleton of the saguaro cactus, but I have seen one before."—John H.

"I liked the saguaro cactus best of all, but I still liked you."—Dottie M.

"We all want to thank you for letting us come to see the cacti. We all liked them. I know I liked them, Old Man of the Desert best of all. I am running out of time. Goodbye." —Michael G.

And we are running out of space. So, good-bye, Michael, and all your classmates. We thank YOU for coming, and hope you all will come back very, very soon again.

ASPECTS OF THE DESERT



This is the western edge of the Chihuahuan desert that extends into eastern Arizona. To the east is the Continental Divide which is the usual demarcation between the Chihuahuan and the Sonoran deserts. This open range land is dotted with the tall Lord's Candle *(Yucca elata);* low rounded clumps of Snakeweed *(Gutierrezia sp.)*; clusters of Canaigre or Wild-rhubarb *(Rumex hymenosepalus)* and Bunch-grasses.

NOTES ON GERMINATION By Charles E. Mieg

When out collecting, we pay as much attention to fruit and seed as we do to the plants, and one of the more interesting facets of the hobby is the raising of plants, from seed.

It has always puzzled me how unpredictable the period of germination can be even among seed from the same fruit. Frequently when such seeds are freshly removed from the fruit they will germinate in less than two days, at least a portion of them. Others will lie around for one or more weeks before showing signs of life, and some will come up many months later when all hope of additional germination seems gone.

On a recent trip into Mexico I found at least a partial answer. I cut open some fruit of **Ferocactus pilosus** to ascertain the ripeness of the seeds. The fruit still seemed immature. Since the seeds seemed mature, I closed the fruit up again and it went in with the others that were collected. At a major stop the fruit was cleaned and the seeds removed for use upon return home, and then I noticed that a number of seeds in the previously opened fruit had germinated and there were a number of little green seedlings all through the pulp. Of course there was no way to save these youngsters.

But much later, upon returning home, when all fruit was processed, I found that partial germination of seed inside the fruit was not uncommon. Particularly was this true of fruit left on the plants beyond the ordinary time for picking. **Solicia pectinata,** for instance, had seedlings in the holes left in the plant where not all seeds had been removed. **Pachycereus pecten-aboriginum** also showed seedlings in the pulp. Fresh-picked fruit of **Echinocactus grusonii** was another with lots of little plants and half-germinated seed when the fruit was opened. They were picked out with tweezers and promptly started to grow when planted.

Many other desert plants seem equally unpredictable as to germination time required. **Beaucarnea gracilis** was planted on June 6th and some were up within ten days, others did not appear until two months later. It may be, and this is purely speculation on my part, that this characteristic of the seed is a sort of built-in safeguard to the survival of the species. By germinating at different periods the chances that some seedlings will meet with the rare favorable conditions for survival are better.

As a general observation I may add that the first germination usually produces much more robust plants than the later hatchings, which seem much more prone to damping-off. Also, the latters' growth is usually much slower. It would be interesting to hear from others who like to play with the problem of raising plants from seed. It is certainly an interesting hobby, and uses little space. But as a means of producing plants to be sold at a profit it is utterly hopeless.

DBG photo

Seedlings of *Beaucarnea gracilis* grown by Mr. Mieg.

BEAUTY FROM DESERT ROOTS

By BARBARA C. HOVATTER
Salome, Arizona

(During the 1966 Cactus Show very many questions were asked about Mrs. Hovatter's collection of mounted and finished roots in the Desert Wood class of entries; how and where to get them, and how to finish them. In the following article Mrs. Hovatter shares her secrets, and her enthusiasm. — Editor).

From the gracefully simple curves to the intricately intertwined, roots add an artistic touch to home decor, and are a joy to work with. My most prized twists, loops and coils are found in mesquite **(Prosopis juliflora)** roots, which finish smoothly, usually a clear blond color, but often with an attractive pinkish-to-red tint and a nice grain. Another desirable root is bucknut, or jojoba **(Simmondsia chinensis)**. It has fantastic jumbles of loops and knots, but a pocked surface, and frequently a dingy color. Palo Verde **(Cercidium spp.)** roots have a hard, smooth surface and blond color with fascinating shapes, the larger of which work into nice free-forms. But you may have to heat-treat (in oven for 10-15 minutes) as Palo Verde often has walapai tiger (an insect, not an animal) larvae eating in it.

So, to go root-treasure hunting, choose a desert wash with at least one of these trees growing along the bank. Carry a small saw with you, and a trowel. The best time to hunt is following a flash flood. The torrential waters roar down the dry beds, cutting back the banks, exposing roots for the first time. If you find a large tree that's been carried down the wash, lying with roots exposed, examine these roots with care from all angles. Consider the potential of each pleasing shape, for where you choose to cut can develop a nice free-form, "Sculpture" or destroy one. Don't pass over the small roots hastily — many delightful little loops and twists are hidden in them.

Be sure to look along the banks. You may see only the top of a curve, and have to dig down in the sand at the base of the bank to unearth a real prize. Poke through the tangle of tiny jojoba roots. Nice little miniatures may be your reward.

Always include plenty of root on either side of the section you want when you cut it out, and do go after the roots before they've been exposed to the weather very long. It's downright frustrating to find an outstanding root shape and then discover it's too rotted to use.

When you get your finds home, let them dry (but not necessarily cure), then peel the bark carefully. Some wood chisels are handy on the larger pieces, and of course the indispensible pocket knife. For the very fragile tiny ones I work with a small needle under a magnifying glass.

DBG photo

Palo Verde root, ironwood mount, 7″ tall, and rather "Chinese" looking.

DBG photo

Only 3″ high, this jojoba root has the "feel" of modern wire sculpture.

After peeling, study the piece in several positions to determine how it will look best, then trim and shape the ends to conform to the "feel" of it. This is sometimes a tricky decision, I admit.

For rubbing the larger pieces, I use abrasives starting with garnet paper No. 80, to remove the roughest surface, then garnet No. 100A. After that the emery cloths and papers from coarse to fine —on some pieces as many as 16 different grits, finishing with No. 400A wet or dry silicone carbide paper. Most hardware stores carry these abrasives. On smaller pieces, never the coarse abrasives. They put in deep gouges. Use only the finest here.

When the root is finished it will feel smooth and have a soft, satiny look. Remember that roots are apt to be porous, and no amount of rubbing can eliminate the minute "breathing holes" in the softer woods. I prefer the dull sheen of one light coat of wax, enough to preserve but not leave a high gloss.

When you've finished your piece, how do you want to mount it? For most of mine, I use ironwood slices, preferably from the heartwood. Beware of burning the blade of a power saw on ironwood. It is not as difficult to hand-saw as you might imagine. Even I have managed it, although my teen-aged daughters usually do the sawing for me. Choose a slice without much contrasting grain. For mounting I like the solid dark effect best, as it allows a light-colored root to show off to best advantage. If the sides are to be left in the natural texture, which I prefer, use a wire brush to give a polish. Then rub and polish the top surface with abrasives. When smooth and glossy, use a light coat of wax, then buff. Glue felt cloth on the bottom.

For the mounting, I've found glue to be unsatisfactory. Frequently it does not hold. I like Rub-Stik*, which holds firmly, but allows the root and base to be taken apart to pack away or transport. Then, when you're ready, you merely roll the same dab of Rub-Stik into a ball and re-press the root onto the base again.

*Rub-Stik may be obtained from Sunset House, 172 Sunset Bldg., Beverly Hills Calif.

DBG photo

Squawberry (Lycium) root, rosewood block. Height without mount is 6″.

OENOTHERA DELTOIDES

ONAGRACEAE
Evening Primrose Family

Dune Primrose
Birdcage Primrose
Devil's Lantern
Lion-in-a-cage

Oenothera deltoides is one of the most attractive desert annuals, and when found blooming among sand dunes where little else grows, one of the most memorable. Moreover, the odd shape of the dried plant, which gives it some of its common names, makes it distinctive long after flowering has passed.

There are a number of named varieties of **Oenothera deltoides,** five of them native to Arizona. One has been found at 5000 ft. altitude, but most are found at elevations of less than 3500 ft. in sandy soil.

In shape, the plant has a short, thick, even conical stem, two to six inches high, with numerous basal branches, four to fourteen inches (occasionally to 30 inches) high. The leaves are from one to seven inches long, and more or less hairy. Flowers of **Oenothera deltoides** are sweet-scented and large, up to three inches across. They open, with the petals white, in the early evening, and stay open until well into the next day, turning gradually to pink. Depending on the variety, they blossom from February until May.

As the plant ages, the outer stems turn up and in, forming, when dry, a "birdcage" or "basket". The seeds are scattered when the "birdcage" is rolled across the sands by the wind.

Understandably, the "birdcages" are used in dried floral arrangements. For

Photo from transparency by Monnie Speck

The three-inch-wide flowers of *Oenothera deltoides* were white on opening last night. Now, in daylight, they have turned light pink.

Christmas 1966, the Garden used "birdcages" both upright and in hanging strings of threes and fours. Small colored ornaments were hung from the curved branches, making attractive "desert mobiles" for our Auditorium and Visitors' Building.

Where **Oenothera deltoides** is found it is common to see the two-line sphinx moth. The larvae of this moth feed voraciously on the leaves and flowers, sometimes in such numbers as to destroy most of the plants. Another, but harmless, inhabitant of this primrose is the tiny yellow-green crab spider who hides among the anthers lying in wait for the small insects it feeds on.

DISTRIBUTION: The desert slopes and plains of the Lower Sonoran, Mojave and Colorado deserts, California, Arizona and Baja California south to at least Punta Penasca, Sonora, Mexico.

REFERENCES:

Jaeger, E. C., DESERT WILD FLOWERS

Jepson, W. L., FLOWERING PLANTS OF CALIFORNIA

Kearney & Peebles, ARIZONA FLORA

Munz, P. A., CALIFORNIA DESERT WILDFLOWERS

Shreve & Wiggins, VEGETATION AND FLORA OF THE SONORAN DESERT

DBG photo

"Birdcages" strung together to form hanging decorations and filled with bright balls. Twenty-four of these strings festooned the Garden's Visitors and Auditorium buildings throughout the Christmas season.

GARDEN ACTIVITIES

JANUARY

Sun.	1st	ILLUSTRATED LECTURES—Arizona Cacti in Flower	3 & 4
Tues.	3rd	CACTOMANIACS meeting	8 P.M.
Wed.	4th	CLASS—Deserts, how formed, and their plants	3 P.M.
Thurs.	5th	ILLUSTRATED LECTURE—Arizona Wildflowers	3 P.M.
Sun.	8th	ILLUSTRATED LECTURES—Arizona Wildflowers	3 & 4
Wed.	11th	CLASS—Desert Succulent Plants	3 P.M.
Thurs.	12th	ILLUS. LECTURE—Arizona Trees & Shrubs in Flower	3 P.M.
Sun.	15th	ILLUS. LECTURES—Arizona Trees & Shrubs in Flower	3 & 4
Tues.	17th	ARIZONA ORCHID SOCIETY meeting	8 P.M.
Wed.	18th	CLASS—Culture of Desert Succulent Plants	3 P.M.
Thurs.	19th	ILLUSTRATED LECTURE—Arizona Birds & Animals	3 P.M.
Sun.	22nd	ILLUSTRATED LECTURES—Arizona Birds & Animals	3 & 4
Wed.	25th	CLASS—Identification of Desert Trees & Shrubs	3 P.M.
Thurs.	26th	ILLUSTRATED LECTURE—Arizona Scenics	3 P.M.
Sun.	29th	ILLUSTRATED LECTURES—Arizona Scenics	3 & 4

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DBG photo

Blossoming stem of the Arizona Dudleya. (Story on page 20.)

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Editor's Notes

The **Twentieth Annual Cactus Show** will be held the 19th to 28th of this month in the Garden's Auditorium. A classification list was included in your January Saguaroland Bulletin. If another list is needed, or any information, write or phone the Garden.

Many inquiries have already been made by exhibitors and several cactus clubs.

We are fortunate to again have out-of-state judges for the **Cacti & Succulents.** This year Mr. & Mrs. Charles Genasci, San Francisco, California have consented to judge. **Arrangements** will be in the hands of Valley Garden Center judges, Mrs. A. F. Browne, Miss Betty Schemick and Mrs. C. H. Morris. **Arts** will be judged by Mr. & Mrs. Salvatore Macri.

All **Painting** exhibits are to be entered by Wednesday, 5 PM., February 15th. All other exhibits can be entered from Thursday 9 A.M. to Saturday 4 P.M. Judging will begin at 7 P.M. Saturday. Awards will be placed prior to opening Sunday 9 A.M.

This will be another busy show and the garden will need the assistance of its members to act as hosts, hostesses, salespersons, guards and guides. We hope you can spend either half a day or a day or more, giving of your time to make this another successful show. Hot lunches will again be served to all volunteers.

The January issue of **Arizona Highways** magazine is another colorful collection of cacti flowers and has an article by your Editor. Since its issuance, phone calls from as far as Allentown, Pa., have been coming in congratulating the Garden on the story.

Memberships in the garden are the highest to date and continuous renewals are always an indication that our members are happy with their association with this unusual garden and its publications.

We would like to pass on to you a recently received letter from a delinquent member that shows the attitude of some of our members.

Dear Mr. Earle:

Enclosed is a check for two years membership as a "Builder." We were not going to renew but this last reminder* you sent "got me." I laugh every time I look at it! Whoever thought it up, and drew it, is a real genius! I won't return it as I want to put it up for "all to see".

We enjoy the Saguaroland Bulletin very much and love to visit you and see the progress the Garden is making. I've given several club talks on the last convention and have many fine pictures of the Garden and of the crowd the day of the "dedication". I don't see how any convention can top that one!

Perhaps we will see you soon, I hope so.

Best wishes, always
Margaret & Chet Emery
Burbank, California

*"reminder" is a weeping Saguaro sent to overdue members. It was the idea of Mrs. Mildred May and cartooned by Reg Manning, Board Members.—*editor*.

ECHINOCEREUS STRAMINEUS — CACTACEAE

Mounded Hedgehog
Pitahaya

DBG photo

A 4′ wide clump of *E. stramineus*, 18″ high. Photographed N. of Ciudad Camargo, Chihuahua, about 300 miles S. of El Paso, Tex.

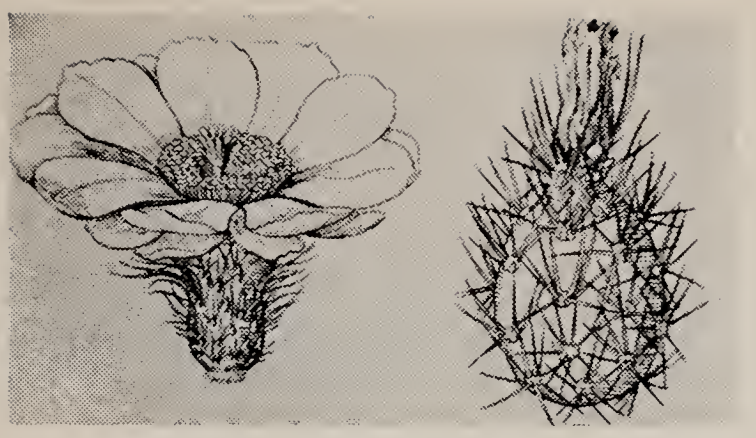
Traveling south of El Paso, Texas, through the Mexican state of Chihuahua may be quite depressing to some folks due to the vast hot desert area, with few plants and trees, bordered on the west by Sierra Madre Occidental and on the east by the Sierra Madre Oriental mountains.

There are many inconspicuous ground-appressed cactus plants and low shrubs through this desert and, to the surprise of many travelers, large mounds of earth on each side of the highway that turn out to be mounds of pitaya-hedgehog cacti covered with many spines protruding from the mounded soil.

Echinocereus stramineus (straw-colored) is a single-headed hedgehog that may develop into a large mound of four to five hundred heads or joints. These mounds can be four to five feet in diameter and up to three to four feet high. The height is caused, in many instances, by wind-blown sandy soil filling up the

DBG photo

The sole flower in the clump above. Purple, a little under 3″ wide.



Line drawing from "The Cactaceae" by Britton and Rose.

spaces between the "heads", causing the heads to grow above the rising soil.

The cylindrical pale-green heads or stems are densely covered with clusters of white spines that in youth were first brown to straw colored. These clusters bear 3-4 central spines 3″-4″ long and also 7-14 spreading radial spines ¾″-1¼″-long spreading at each areole.

The light to dark funnel-formed purple flowers are borne on the sides of the stems and are few to the plant, appearing in May through June, followed by edible red globular fruits covered with many spines that readily drop off when the fruit is ripe. The Indians gather these strawberry-like fruits for food and sometimes store them for future use.

The plants are found growing on dry mountains hillsides, and open flat desert areas in western Texas, southern New Mexico, south to the Mexican states of San Luis Potosi and Aguascalientes. Type locality of first collection was the Graham Mountains north of El Paso, Texas.

These plants are interesting for any outdoor cacti garden but due to their dense spination will hold wind-blown paper, leaves, etc., and have to be "cleaned" quite often. Do not attempt to move large mounded plants as they do not readily reroot and will eventually die. Smaller clusters, up to 10 inches in diameter, will quickly reroot and are easily handled.

REFERENCES:

Borg, J., Cacti

Bravo, Helia., Las Cactaceas de Mexico.

Britton & Rose, Cactaceae

Earle, W. H., Cacti of the Southwest

Schulz, Ellen D., Texas Cacti

DBG photo

A clump 7 ft. across, half buried by wind-blown sand from a dry lake E. of Torreon, Coahuila. Hans Krainz of Zurich is beside it.

A MEMBER'S GARDEN

Cactus and rocks and agaves and native trees make a handsome desert garden where there was only bare dirt five years ago. Dr. and Mrs. Robert G. Buzzard of Tempe, Arizona, had raised beds made of decomposed granite, and started planting with emphasis on shapes and textures. The saguaro was large, but the acacia and palo verde trees were just seedlings then. The pictures below show how well the Buzzards have done—and how well the plants have done, too. (Other Members' gardens will be featured in future issues.)

ASPECTS OF THE DESERT

No scene is more tyical of the desert around Phoenix than this picture taken near the Superstition Mtns. in April. The early-blooming Strawberry Hedgehog cactus is common, as are Saguaros and Teddybear Chollas. The shrub is Bur-sage. Soil is typical rocky outwash plain. Elevation 1850′.

Dudleya pulverulenta subsp. arizonica (Rose) Moran

Fam. Crassulaceae

ARIZONA DUDLEYA

Dudleya pulverulenta subsp. **arizonica** is one of two species of **Dudleya** found in Arizona and it generally grows in the lower and more arid habitat. It is a perennial with succulent glabrous leaves forming a rosette from 3 to 30 cm. in diameter. The stem generally is simple, but occasionally dichotomously branched and measures 1 to 4 cm. in diameter and to 15 cm. in length.

There are from 10 to 35 fleshy basal leaves in the rosette, with the old dry leaves remaining persistent below. These basal leaves are oblong to ovate-lanceolate, being widest above the base and becoming abruptly acuminate at the apex. Leaves are 3 to 17 cm. in length and 1 to 5 cm. in width. Floral stem leaves are sessile and bract-like with an alternate arrangement.

DBG photo

An eight-inch-tall *D. pulverulenta* photographed in the Garden.

Flowering extends from April to June. Floral stems are 2 to 6 dm. in height and the erect pedicels are as much as 2 cm. in length. The five-petal corolla blends in color from red to apricot-yellow and is up to 12 mm. long. The narrow (2 mm.) corolla lobes are much shorter than the tube, which measures 4 to 8 mm. in length. There are five fleshy calyx lobes which are erect and up to 5 mm. long. Stamens number ten. The minute ovoid seeds are numerous and red to brown in color.

The Arizona **Dudleya** is found on rocky slopes and mountains of the Lower Sonoran Zone in western Arizona, southern Nevada, southeastern California, as well as in northern Baja California and northwestern Sonora, Mexico. In south central Arizona it extends east as far as a north-south line through the capital city Phoenix, where its range overlaps that of the other species of **Dudleya** occuring there.

This member of the Crassula family is difficult to grow in cultivation, but if it is placed in a raised rockery or potted with coarse rocky soil and watered sparingly, success may be attained. Aphids, if not controlled, will damage the inflorescence and care must be taken in the selection of an insecticide, for many of them are destructive to plants of this family. Pyrethrum is probably safe.

REFERENCES:

Jacobsen H.—A HANDBOOK OF SUCCULENT PLANTS.

Kearney & Peebles—ARIZONA FLORA

ECHINOCACTUS HORIZONTHALONIUS

CACTACEAE

Blue Barrel
Melon Cactus
Turk's Head
Devil's Head

DBG photo

This 9″ specimen of *E. horizonthalonius* is an exceptionally tall one.

Echinocactus horizonthalonius is a small globular-to-columnar barrel cactus that will never grow too tall, making it an ideal plant for collectors of cacti. The gray-blue body color is found in no other barrel cactus.

When these small barrels are young, and until they are eight or ten years old, they grow appressed, or close to the ground, as the specific name implies. During this time they are quite hard to locate in their natural habitat. Older plants up to twelve inches high are found, but the usual size is about six inches, with a diameter of five or six inches.

The clusters of stout, curved spines somewhat resemble the talons of an eagle, yet some of the individuals have been found with only short spines clustered along the edges of the plant ribs.

Many barrel cacti blossom only once a year, but this prolific barrel produces large three-inch pink-to-magenta flowers three and four times each year, from spring to late summer, and begins to blossom when the plant is still young. At elevations of 3000 to 5500 feet **Echinocactus horizonthalonius** grows well in full sun. In cultivation they do not require frequent watering, and will grow in full sun at lower elevations, but will do better if given partial shade.

These small barrels have a wide distribution, from the Silver Bell Mountains west of Tucson, Arizona, to Las Cruces, New Mexico, east and south to Eagle Pass, Texas, and then southward through the Mexican states of Coahuila and Durango.

The fruit of **E. horizonthalonius** is soft, with pink edible flesh. The fruit is covered with a long white wool which is used by many birds to line their nests. The pulp of the cactus is used for candy-making in Mexico.

REFERENCES:

Benson, L., CACTI OF ARIZONA
Borg, J., CACTI

Bravo, H., LAS CACTACEAS DE MEXICO

Earle, W. H., CACTI OF THE SOUTHWEST

Schulz, E. D., TEXAS CACTI

R. C. Proctor photo

The large rose-colored blossom of *Echinocactus horizonthalonius* contrasts with the bluish color of the body and makes the Blue Barrel a most attractive plant.

The article on p. 16 is the first of a series devoted to Mexican cactus collected and photographed by the Editor during the May, 1966 trip. Many have never before been photographed in their natural habitats. Photography and collecting were of equal importance during the trip, as reported in earlier issues of the BULLETIN.

PROBOSCIDEA ALTHEIFOLIA

MARTYNIACEAE
Unicorn-plant Family

Devil's Claw
Elephant's Tusks
Unicorn Plant

DBG photo

Above, the graceful flowers of *P. altheifolia*. At right, the fruit. The fuzzy brown covering drops off as the fruit dries and splits.

Both flower and fruit of **Proboscidea altheifolia** attract attention. This low-growing perennial produces fragrant, clear yellow, funnelform flowers whose flaring lobes are marked with reddish lines and specks. Flowers grow on racemes that may reach eight inches in length. Each flower is an inch to an inch and a half long, and as broad.

It is the fruit of **P. altheifolia** which gives it its common names. The fruit is a many-seeded woody capsule two to four inches long, ending in a long curved beak. Before it dries and splits it merits the name "Unicorn Plant". But as it splits in two and the prongs become

DBG photo

With sharp, curved prongs, this is well named "Devil's Claw."

DBG photo

Papago Indian basket made of Devil's Claw (black), rushes, and willow.

black and even more curved in drying, the names "Devil's Claw" and "Elephant Tusks" become more appropriate.

P. altheifolia (formerly called **P. altheaefolia** and **Martynia altheaefolia**) is found in sandy soil in the Lower Sonoran Zone, from western Texas to southeastern California, south to Sinaloa and southern Baja California, Mexico. In Arizona it grows at elevations below 2500 ft. in Mohave and Yuma Counties. Blooming time in Arizona is July to September. In the more southerly parts of its range it blooms nearly all the year long.

Young pods are sometimes eaten by the desert Indians as a vegetable, but the more frequent use of this plant is in basket-making. Both Pima and Papago basket makers strip the black outer covering from the dried seed pods and use it to weave black designs into their light-colored work.

REFERENCES:

Kearney & Peebles, ARIZONA FLORA

Shreve & Wiggins, VEGETATION AND FLORA OF THE SONORAN DESERT

GARDEN ACTIVITIES FOR FEBRUARY

Wed.	1st	CLASS—Culture of Desert Trees & Shrubs	3 P.M.
Thurs.	2nd	ILLUSTRATED LECTURE—Leaf Succulent Plants	3 P.M.
Sun.	5th	ILLUSTRATED LECTURES—Leaf Succulent Plants	3 & 4
Tues.	7th	CACTOMANIACS Meeting (see below)	8 P.M.
Wed.	8th	CLASS—All-day Desert Field Trip	9 A.M.
Thurs.	9th	ILLUSTRATED LECTURE—Unusual Cacti in Flower	3 P.M.
Sun.	12th	ILUSTRATED LECTURES—Unusual Cacti in Flower	3 & 4
Tues.	28th	ARIZONA ORCHID SOCIETY meeting	8 P.M.

SUNDAY 19th through SUNDAY 26th
TWENTIETH ANNUAL CACTUS SHOW
9 A.M. to 5 P.M.

CACTOMANIACS program for February: Review of a book on flower arrangements by Mrs. Otto Friedrichs. Demonstration of arrangements (cactus, succulents and dried desert material) by Mrs. R. I. Turner. Cactomaniacs meetings are open to all interested persons.

TWENTIETH ANNUAL

CACTUS SHOW

February 19th to and
including Feb. 26th 1967

Sponsored by the Phoenix Gazette and the

Desert Botanical Garden

Webster Auditorium
Desert Botanical Garden
Papago Park

entrances at
5800 E. Van Buren & 6400 E. McDowell
Phoenix, Arizona
Telephone 947-2800

SHOW OPEN DAILY 9 A.M. TO 5 P.M. — ADMISSION FREE

A portion of the 1966 Show that had 97 Exhibitors,
532 Exhibits, and 9,618 Visitors.

CLASSIFICATIONS

SECTION I **CACTI***

Class A. **POTTED PLANTS** (Limited to 3 named entries per Division)

Div. 1. OPUNTIA
2. CEREUS
3. ECHINOCEREUS
4. REBUTIA
5. CHAMAECEREUS
6. LOBIVIA
7. ECHINOPSIS
8. ARIOCARPUS
9. STENOCACTUS
10. FEROCACTUS
11. ECHINOCACTUS
12. GYMNOCALYCIUM
13. ASTROPHYTUM
14. THELOCACTUS
15. ECHINOMASTUS
16. CORYPHANTHA
17. MAMMILLARIA
18. EPIPHYLLUM
19. SEEDLINGS
20. ANY OTHER SPECIES**

Class B. **CRESTED PLANTS**

Div. 1. Crested Cacti — own root
2. Crested Cacti — grafted

Class C. **MONSTROSE PLANTS**

Class D. **GRAFTED PLANTS**

Class E. **COLLECTIONS** (5 different species of a genus)

SECTION II **SUCCULENTS OTHER THAN CACTI***

Class A. **POTTED PLANTS** (Limited to 3 named entries per Division)

Div. 1. AEONIUM
2. AGAVE
3. ALOE
4. BRYOPHYLLUM
5. CRASSULA
6. DUDLEYA
7. ECHEVERIA
8. EUPHORBIA
9. GASTERIA
10. HAWORTHIA
11. KALANCHOE
12. LITHOPS
13. MESEMBRYANTHEMUM
14. PLEIOSPILOS
15. SEDUM
16. STAPELIA
17. YUCCA
18. SEEDLINGS
19. ANY OTHER SPECIES**

Class B. **COLLECTIONS** (5 different species of a genus)

*Grown by exhibitor at least 3 months

**Additional Divisions will be set up when 3 or more species of a genus are entered.

SECTION III **DESERT TREES AND SHRUBS***

Class A. TREES
Class B. SHRUBS
Class C. DESERT BONSAI
Class D. ANY OTHER DESERT PLANTS
Class E. SEEDLINGS

SECTION IV **ARRANGEMENTS** (One entry per Division)***

Class A. **DISH GARDENS**, planted (accessories permitted)
Div. 1. CACTI
2. OTHER SUCCULENTS
3. CACTI & OTHER SUCCULENTS

Class B. **STRAWBERRY JARS** (Cacti and/or other succulents)

Class C. **PATIO PLANTERS** (Cacti and/or Desert Plants)

Class D. **CENTERPIECES** (Accessories permitted)
Div. 1. CACTI
2. OTHER SUCCULENTS
3. CACTI & OTHER SUCCULENTS
4. NATURAL, DRIED DESERT MATERIAL****
5. MEXICAN INFLUENCE
6. AMERICAN INDIAN INFLUENCE
7. ANY OTHER

The above Divisions of Class D will apply to the following Classes E, F, G, H and J:

Class E. **ARRANGEMENTS on or AGAINST THE WALL** (Accessories permitted)

Class F. **CORSAGES**

Class G. **BUTTON GARDENS**

Class H. **MINIATURE ARRANGEMENTS** — under 5" high

Class J. **SMALL ARRANGEMENTS** — 5" to 8" high

SECTION V **ARTS** DESERT SUBJECTS ONLY (work of exhibitor)

Class A. **BLACK & WHITE PHOTOGRAPHS**

Class B. **COLORED PHOTOGRAPHS**
Div. 1. COLORED PRINTS
2. TRANSPARENCIES

****No artificial coloring permitted.
***"Desert Spoons" prohibited.

SECTION V **ARTS** - continued:

Class C. **OIL PAINTINGS** (limited to 3 framed original entries)

Class D. **WATERCOLOR PAINTINGS** (limited to 3 framed original entries)

Class E. **ANY OTHER MEDIUM**

Class F. **NATURAL DESERT WOODS** (uncarved)

SECTION VI **EDUCATIONAL EXHIBITS**

SECTION VII **JUNIOR CLASS** (Elementary School Students may enter in any of preceding classifications)

SECTION VIII **OPEN: NON-COMPETITIVE**

The Twentieth Annual Cactus Show will be held in the Webster Auditorium, Desert Botanical Garden, February 19 - February 26, and is open to all persons interested in Succulent Plants, Arrangements, Photography (B.&W. or colored), Paintings, (desert subjects) or Desert Woods. No entry fee is charged.

All entries in Section V (Arts) should be entered by Wed., Feb. 15th, 5 P.M. All other entries should be entered from Thurs., Feb. 16th, 9 A.M. to Sat., Feb. 18th, 4 P.M.

Judging will be held 7-9 P.M. February 18th.

Sweepstakes will be awarded for the most Blue Ribbons accumulated in the four large Sections; small trophies will be given for outstanding exhibits in the various Classes; ribbons for 1st, 2nd, 3rd, and Honorable Mention, if merited, in each classification.

Exhibits can be removed only after 5 P.M., Sunday February 26th.

The Garden will take all due care and caution but will assume no responsibility for loss or breakage, or for unclaimed exhibits.

Scale of points is as follows:

CACTI & SUCCULENT SPECIMEN PLANTS	
Condition	45
Nomenclature	15
Rarity	10
Size or degree of maturity	10
Staging	20
	100

MINIATURES	
Scale	40
Design	30
Color Harmony	20
Condition	10
	100

ARRANGEMENTS	
Design	30
Color	15
Relationship	15
Originality	15
Distinction	15
Condition	10
	100

CORSAGES	
Technique	15
Design	25
Color	15
Suitable combination of material	15
Distinction	20
Condition	10
	100

The "Handbook for Flower Shows," published by the National Council of State Garden Clubs, Inc., will be used as the basis of exhibiting, point scoring and judging of all Arrangements, Dish Gardens, Miniatures, etc. The Standard System of Judging will be used.

The decision of the National Accredited Judges will be final.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI March, 1967 No. 3

Coryphantha elephantidens, Best Cactus in the Show, exhibited by L. Bremer, Sun City, Ariz.

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona. P. O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXI | March, 1967 | No. 3

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Material reprinted from this issue should be credited to SAGUAROLAND BULLETIN, Desert Botanical Garden.

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GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

REPORT OF THE 20th ANNUAL CACTUS SHOW

This is the first time that the Show Committee has placed limitations on the number of entries that an exhibitor could enter in certain classifications and, interestingly, the number of entries was cut down to 507 against 620 of last year, yet it increased the exhibitors to 157 or 43 more than last year.

The result of the limitations was apparent in the high quality of the entries, especially the education exhibits where our 11,990 visitors 'jammed' the aisles causing a continuous 'bottleneck' in the traffic. The specimen plants were well staged and identified. Dish gardens, Centerpieces and Arrangements were excellent. Black & White and color prints and transparencies were the best in years. Paintings, either oil or watercolors, were quite colorful and attractive, both adding greatly to the Show.

We really appreciated the many hours volunteered by the following members during the eight day Show — Mrs. Aletha Ashley, Mrs. Maye Brady, Mr. & Mrs. Fred Baselt, Dr. Robert C. Buzzard, Mrs. Brenda Beaulier, Mr. & Mrs. Harry C. Cellner, Mrs. W. G. Cook, Mrs. Roy C. Cooper, Mrs. Harold C. Covert, Mr. & Mrs. Warner Dodd, Mrs. Grace Connolly, Demetrius Vlachos, Mrs. Liscum Diven, Clarence J. Fuhrer, Mrs. Otto Friedrichs, John C. Garceau, Robert Gotter, Mr. & Mrs. William Hunt, Bert Jinneman, Mr. & Mrs. Salvatore Macri, Mr. & Mrs. Dugan Lewis, Mr. & Mrs. Charles Mieg, Mrs. Una Miller, Miss Trudy Miller, Mr. & Mrs. J. C. McDougall, Mrs. Jesse Nixon, Mrs. Edward Poulsen and Mr. & Mrs. Charles F. Genasci.

Exhibitors were well pleased with the placings by the judges (mentioned in the Feb. issue) plus the addition of Mr. and Mrs. Herb McLaughlin, Phoenix, who judged the photographic section.

The Show Committee was most satisfied with this unique show and the opportunity to present it annually to Phoenix and its many winter visitors.

A partial view of the Show with Cactus gardens in the foreground, Leaf Succulents and Cacti in background and oil paintings of desert subjects on the wall.

WINNING ENTRIES IN THE 20th ANNUAL CACTUS SHOW

SWEEPSTAKES WINNERS

CACTI ..... L. Bremer, Sun City, Arizona
OTHER SUCCULENTS ..... John B. Hales, 1641 E. Willetta, Phoenix, Ariz.
ARRANGEMENTS ..... Mrs. Lela Turner, 324 W. Siesta Way, Phoenix, Ariz.

TROPHY WINNERS

1. BEST CACTI ..... L. Bremer, Sun City, Arizona
2. BEST COLLECTION OF FIVE CACTI ..... Charles Mieg, Scottsdale, Ariz.
3. BEST SUCCULENT ..... Mrs. Lena C. Marvin, 1324 W. Seneca St. Tucson, Ariz.
4. BEST DISH GARDEN ..... Mrs. Frank M. Feffer, 7349 Clearwater Parkway, Scottsdale, Ariz.
5. BEST CENTERPIECE ..... Mrs. Joseph Nuber, 1908 N. 22nd Place, Phoenix, Ariz.
6. BEST ARRANGEMENT AGAINST WALL ..... Mrs. Laura Nixon, 1541 E. Willetta, Phoenix, Arizona.
7. BEST PATIO PLANTER ..... Irwin McMahon, 6618 Jackrabbit Road, Scottsdale, Arizona
8. BEST BLACK AND WHITE PHOTO ..... Miss Agnes Holst, 1902 East Willetta, Phoenix, Arizona
9. BEST COLORED PRINT ..... E. Leon Foreman, 4911 West Flynn Lane, Glendale, Arizona
10. BEST TRANSPARENCY ..... Mrs. Laurie Kriz, Rt. No. 1, Box 1705, Apache Junction, Arizona
11. BEST OIL PAINTING ..... Russell Ker, 534 W. 16th Street, Tempe, Ariz.
12. BEST WATERCOLOR ..... Mrs. Ray D. Hovatter, Salome, Arizona
13. BEST ANY OTHER MEDIUM (ART) ..... Mrs. Thomas R. Palfrey, 237 E. Concordia, Tempe, Arizona
14. BEST DESERT WOOD ..... Ed Matteson, 1216 E. McClelland, Phoenix, Arizona
15. BEST EDUCATIONAL EXHIBIT ..... Manuel Diaz, 172 West Tulsa, Chandler, Arizona
16. BEST JUNIOR EXHIBIT ..... Tom Beck, 4110 E. St. Joseph Way, Phoenix, Arizona
17. NON-COMPETITIVE EXHIBIT ..... Cactus Botanical Club, Tucson, Ariz.

TWENTIETH ANNUAL CACTUS SHOW AWARD WINNERS

SECTION I. CACTI

CLASS A. POTTED PLANTS

Div. 1. OPUNTIA

1st, Clifford M. Schroeder, 2126 Ventura Dr., Tempe. 2nd, Earl Pierson, 325 W. Willetta St., Phoenix. 3rd, Virgil Haley, 910 S. 28th Ave., Phoenix. 4th, R. W. Lewis, 6024 E. Hollyhock, Phoenix.

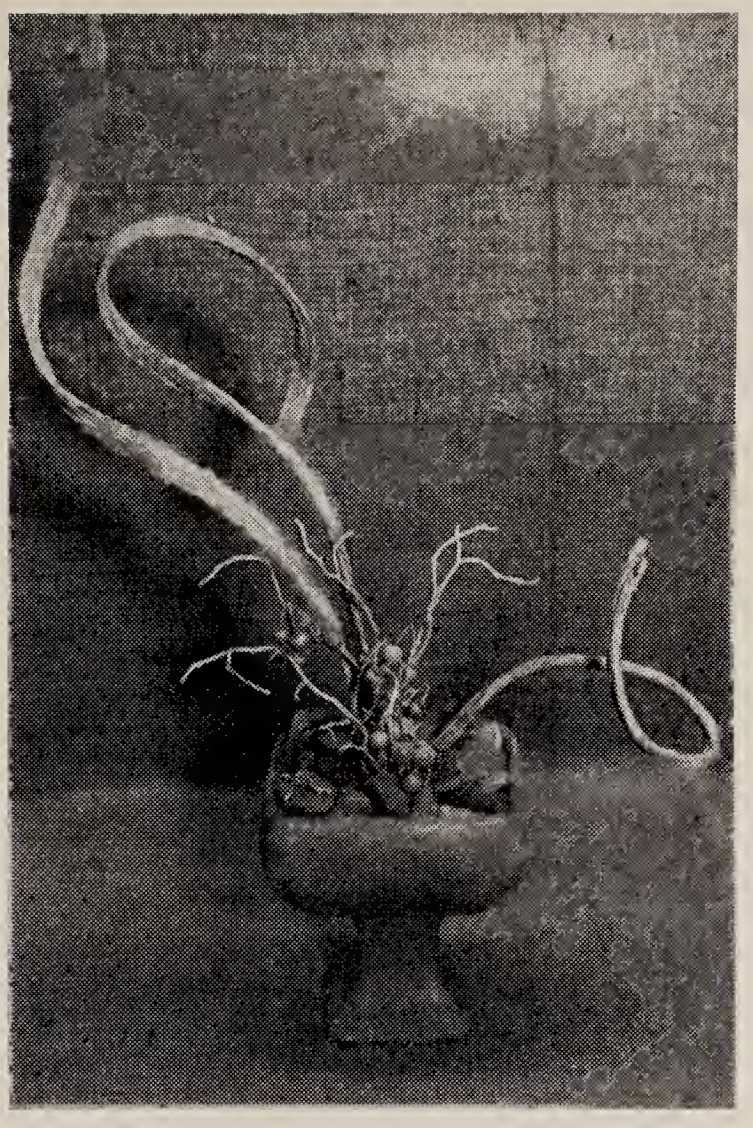
Div. 2. CEREUS

1st, Mrs. Laura Nixon. 2nd, John B. Hales. 3rd, Mrs. Selmer Nelson, 2835 W. Rancho Dr., Phoenix. 4th, David Squires, 3602 N. 47th St., Phoenix.

Div. 3. ECHINOCEREUS

1st, John Hales. 2nd, Earl Pierson.

Centerpiece of American Indian influence by Mrs. Joseph Nuber,



Centerpiece with natural desert material. Mrs. Ora Patterson, Scottsdale

Div. 4. REBUTIA
1st, Clifford M. Schroeder. 2nd, 3rd and 4th, Earl Pierson.

Div· 5. CHAMAECEREUS
1st, Mrs. Richard Enz, 105 Cairo Dr., Tempe. 2nd, Sandra Hovatter, Salome, Ariz.

Div. 6. LOBIVIA
1st, Nancy Clark, 3315 Treat Circle, Tucson. 2nd, Laura Nixon. 3rd, Earl Pierson, 4th, Mrs. Russell Slingerland, 8503 E. Heatherbrae Dr., Scottsdale.

Div. 7. ECHINOPSIS
1st, Laura Nixon. 2nd, Marge Meyer, 502 W. Vermont, Phoenix. 3rd, Sandra Hovatter. 4th, Paul Enz, 55 W. 13th St., Tempe.

Div. 9. STENOCACTUS
1st and 3rd, L. Bremer. 2nd, Charles Mieg.

Div. 10. FEROCACTUS
1st, Charles Mieg.

Div. 11. ECHINOCACTUS
2nd, Earl Pierson

Div. 12. GYMNOCALYCIUM
1st and 3rd, Nancy Clark. 2nd, Earl Pierson.

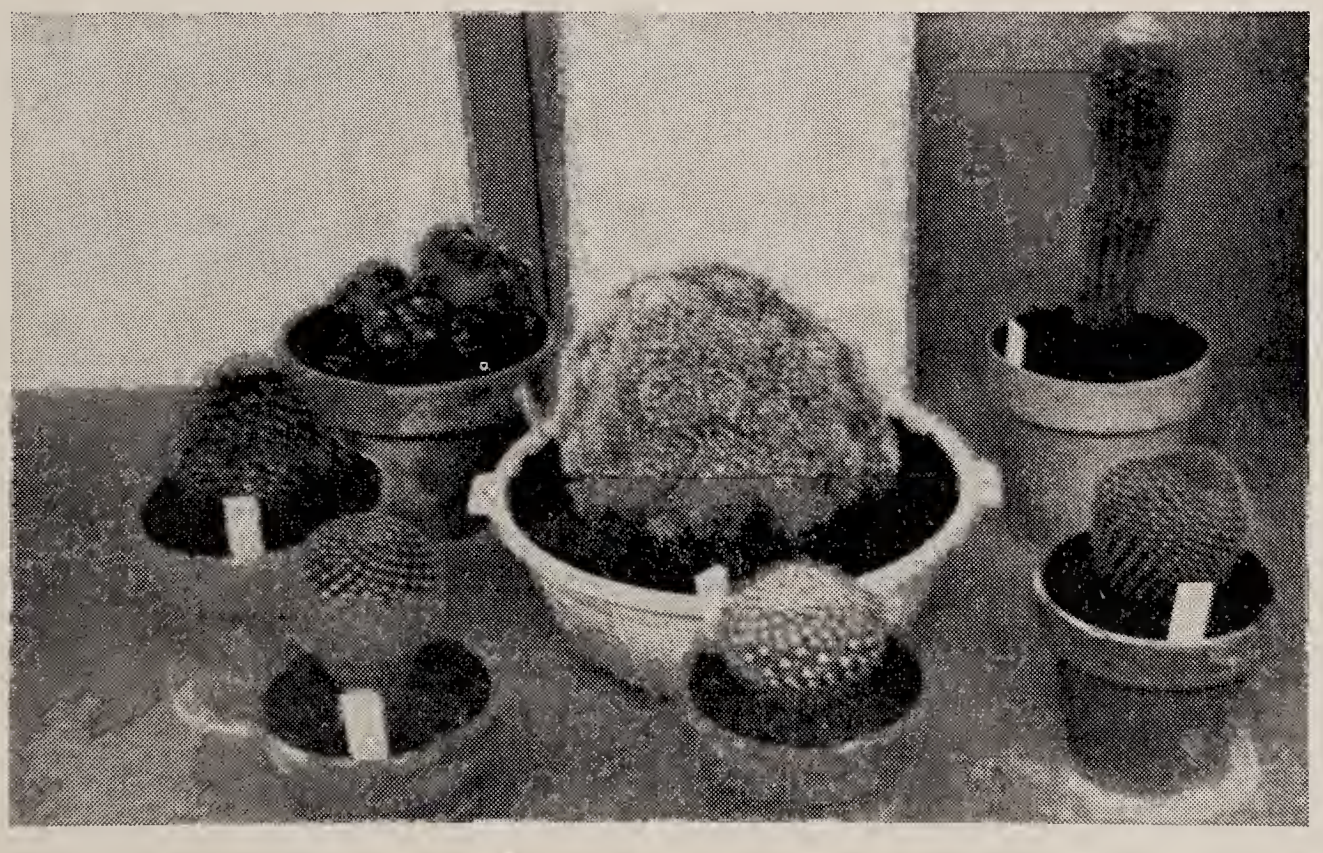
Div. 13. ASTROPHYTUM
1st, John Hales. 2nd, Charles Mieg. 3rd, Bert Jinneman, 2135 N. Center, Mesa. 4th, Earl Pierson

Div. 14. THELOCACTUS
1st, 2nd and 3rd, L. Bremer· 4th, Charles Mieg.
Div. 15. ECHINOMASTUS
1st, 2nd and 4th, L. Bremer. 3rd, Charles Mieg.
Div. 16. CORYPHANTHA
1st, 2nd and 4th, L. Bremer. 3rd, Alan Blackburn, Rt. 9, Box 964-M, Tucson. 4th Charles Mieg.
Div. 17. MAMMILLARIA
1st and 2nd, L. Bremer. 3rd, Charles Mieg. 4th, Mrs. R. Slingerland. 4th (twice), Nancy Clark. 4th twice), Alan Blackburn.
Div. 19. SEEDLINGS
1st, 2nd, and 3rd, Charles Mieg. 4th, Mrs. Ray Hovatter, Salome, Arizona.
Div· 20. ANY OTHER SPECIES
1st, Mrs. Ray Hovatter. 2nd, John Hales. 3rd, Clifford M. Schroeder. 4th (twice), Alan Blackburn.
Div. 21. NOTOCACTUS
1st, Nancy Clarke. 2nd and 3rd, Earl Pierson.
Div. 24. PARODIA
1st, Alan Blackburn, 2nd, Earl Pierson.
Div. 25. PEDIOCACTUS
1st, 2nd and 3rd, Alan Blackburn.
CLASS B. CRESTED PLANTS
Div. 1. CRESTED CACTI—own root.
1st, L. Bremer. 2nd and 3rd, Claude R. Drown, 5712 Lockwood, Mesa.
CLASS D. GRAFTED PLANTS
1st and 3rd, Alan Blackburn. 2nd, Mrs. Russell Slingerland. 4th, Charles Mieg·
CLASS E. COLLECTIONS (5 different species of a genus).
1st, Charles Mieg. 2nd, Earl Pierson. 3rd, Mrs. Louise Hartman, 501 W. Vermont Ave., Phoenix.

SECTION II. SUCCULENTS OTHER THAN CACTI
CLASS A. POTTED PLANTS
Div. 1. AEONIUM
1st, Margie Briggs, 2340 N· 11th St., Phoenix. 3rd, Isabelle Holt, 4648 E. Palm Lane, Phoenix.
Div. 2. AGAVE
1st and 2nd, John Hales. 3rd and 4th Clifford M. Schroeder.
Div. 3. ALOE
1st, Mrs. Lela Turner. 2nd, Clifford M. Schroeder. 3rd and 4th, Mrs. Mary Forman, 4217 E. Marion Way, Phoenix. 4th, Mrs. L. V. Matson, 2218 N. 74th Pl., Scottsdale.
Div. 5. CRASSULA
1st and 2nd, Marge Meyer. 3rd, C. C. Pidgeon, 7550 N. 16th St., Phoenix.
Div. 6. DUDLEYA
1st, Clifford M. Schroeder.
Div· 7. ECHEVERIA
1st, Margie Briggs, 2nd and 3rd, Mrs. Russell Slingerland.
Div. 8. EUPHORBIA
1st and 4th, Nancy Clark. 2nd, John Hales. 3rd, Lillian A. Lugibihl, 811 W. Howe St., Tempe. 4th, Mrs. Russell Slingerland.

Echeveria gibbiflora—Marjorie Briggs, Phoenix

Dry arrangement against the wall of *Menzelia* and *Perezia*—Mrs. E. H. Schrieber, Mesa



An educational exhibit by Manuel Diaz, Chandler, Ariz., showing that cacti will grow in continuously moist, well drained Hawaiian tree fern shreddings.

Div. 9. GASTERIA
1st, John Hales· 3rd, Earl Pierson.
Div. 10. HAWORTHIA
1st, John Hales. 2nd, Mrs. A. A. Misel, 1637 E. Willetta, Phoenix. 3rd, Earl Pierson.
Div. 11. KALANCHOE
1st, Isabelle Holt.
Div. 12. LITHOPS
1st, Alan Blackburn·
Div. 13. MESEMBRYANTHEMUM
1st, Bert Jinneman.
Div. 16. STAPELIA
1st, Lenora Butler, 4121 S. Mill Ave., Tempe. 2nd, Isabelle Holt.
Div. 17. YUCCA
1st and 2nd, Clifford M. Schroeder.
Div. 18· SEEDLINGS
1st and 2nd, Charles Mieg. 3rd, Clifford Schroeder.
Div. 19. ANY OTHER SPECIES
1st, Mrs. Lena Marvin. 2nd, Bert Jinneman. 3rd, Margie Briggs. 4th, John Hales.
CLASS B. COLLECTIONS (5 different species of a genus).
1st, Bert Jinneman.

SECTION III. DESERT TREES AND SHRUBS
CLASS A. TREES
1st and 2nd, Mrs. Lela Turner.
CLASS C. DESERT BONSAI
1st, Clifford M. Schroeder.

SECTION IV. ARRANGEMENTS
CLASS A. DISH GARDENS
Div. 1. CACTI
1st, Mrs. Ray Hovatter. 2nd, Earl Pierson. 3rd, Mrs. Leo O'Neill, 5023 W. Clarendon, Phoenix. 4th, Jean Hovatter. 4th, Mrs. Richard White, 7801 N. Calle Caballeros, Scottsdale.
Div. 2. OTHER SUCCULENTS
1st, Marge Meyer. 2nd, Mrs. Carl Dodd, 2605 W. Van Buren, Phoenix. 3rd, Virginia Carnahan, 5705 N. 38th Ave., Phoenix. 4th, J. Thomas Beck. 4th, Mrs. Frank M. Feffer.
Div. 3. CACTI & OTHER SUCCULENTS
1st, Mrs. Frank M. Feffer. 2nd, Mrs. Lela Turner. 3rd, Mrs· Louise Hartman. 4th, Lillian A. Lugibihl. 4th, Mrs. Robert Craig, Pinal Ranch, Miami, Ariz. 4th, Jacqueline L. Evans, 811 W. Howe St., Tempe.
CLASS B. STRAWBERRY JARS
1st, Mrs· Orville Kritzer, 11484 Illinois Ave., Youngtown. 2nd, Robert G. Buzzard, 320 Broadmor Dr., Tempe. 3rd, Karl Laubach, 2922 E. Moreland, Phoenix.
CLASS C. PATIO PLANTERS
1st, Irwin McMahon, 6618 Jackrabbit Rd., Scottsdale. 2nd, Isabelle Holt. 3rd, Mrs. Frank M. Feffer. 4th, Virginia Carnahan. 4th, Mrs. Mary Forman.
CLASS D· CENTERPIECES
Div. 1. CACTI
1st, Mrs. Lela Turner.

Div. 2. OTHER SUCCULENTS
2nd, Mrs. Lela Turner.
Div. 3. CACTI AND OTHER SUCCULENTS
1st, Mrs. Lela Turner. 2nd, Armond Sherman, 3742 E. Berridge Lane, Phoenix.
Div. 4. NATURAL, DRIED DESERT MATERIAL
1st, Mrs. E. H. Schrieber, 5233 E. Covina Rd., Mesa. 2nd, Mrs. Ora Patterson, 7933 E. Latham, Scottsdale. 3rd, Mrs. Lela Turner. 4th, Lillian A. Lugibihl. 4th, Mrs. Valerie Nelson, 7840 E. Palm Lane, Scottsdale.
Div. 5. MEXICAN INFLUENCE
2nd, Bonnie L. de Rodriguez, 621 W. Howe, Tempe.
Div. 6. AMERICAN INDIAN INFLUENCE
1st, Mrs. Joseph Nuber.
Div. 7. ANY OTHER
1st, Mrs. Lela Turner. 2nd, Earl Pierson.

CLASS E. ARRANGEMENTS ON OR AGAINST WALL
Div. 1. CACTI
1st, Mrs. Joseph Nuber. 2nd, Mrs. Lela Turner, 3rd, Valerie Nelson.
Div. 2. OTHER SUCCULENTS
1st, Mrs. Lela Turner. 2nd, Mrs. Laura Nixon. 3rd, Mrs. Valerie Nelson. 4th, Marge Meyer.
Div. 4. NATURAL, DRIED DESERT MATERIAL
1st, Mrs. Laura Nixon. 2nd, Mrs. Joseph Nuber. 3rd, Mrs. Lela Turner. 4th, Mrs. Franklin Girard, Payson, Arizona. 4th, Mrs. Cornelius van Bavel, 2126 LaRosa Dr., Tempe.
Div. 5. MEXICAN INFLUENCE
1st, Clifford M. Schroeder. 3rd, Mrs. Michael McNulty, 1550 W. 6th St., Tempe.
Div. 6. AMERICAN INDIAN INFLUENCE
1st, Mrs. Lela Turner.
Div. 7. ANY OTHER
2nd and 3rd, Mrs. Adena Leth, Black Canyon Stage, Phoenix.

CLASS G. BUTTON GARDENS
Div. 1. CACTI
2nd, Mrs. Pearl E. Stewart, 322 N. 11th Pl., Phoenix.
Div. 2. OTHER SUCCULENTS
1st, Mrs. Joseph Nuber.
Div. 3. CACTI & OTHER SUCCULENTS
2nd, Mrs. Lela Turner
Div. 4. NATURAL, DRIED DESERT MATERIAL
1st, Mrs. Franklin Girard.
Div. 6. AMERICAN INDIAN INFLUENCE
2nd, Mrs. Lela Turner.
Div. 7. ANY OTHER
1st, Mrs. Lela Turner.

CLASS H. MINIATURE ARRANGEMENTS—under 5″ high.
Div. 2. OTHER SUCCULENTS
1st, Mrs. Joseph Nuber.
Div. 3. CACTI & OTHER SUCCULENTS
1st, Mrs. Lela Turner.

Div. 4. NATURAL, DRIED DESERT MATERIAL
1st, Mrs. E. H. Schrieber. 2nd, Mrs. Franklin Girard, 3rd, Mrs. Ray Hovatter.
Div. 6. AMERICAN INDIAN INFLUENCE
1st, Mrs. Robert Craig. 2nd, Mrs. Lela Turner.

CLASS J. SMALL ARRANGEMENTS—5" to 8" high.
Div. 1. CACTI
1st, Mrs. Joseph Nuber.
DIV. 4. NATURAL, DRIED DESERT MATERIAL
1st, Margie Briggs. 2nd, Mrs. Lela Turner. 3rd, Mrs. Ray Hovatter.
Div. 6. AMERICAN INDIAN INFLUENCE
1st, Mrs. Joseph Nuber.

SECTION V. ARTS

CLASS A. BLACK & WHITE PHOTOGRAPHS
Landscape: 1st and 4th, Edith M. Royky, Sioux City, Ia. 2nd and 4th, Hobart Pribbenow, 3405 E. Sheridan, Phoenix. 3rd, Helen C. Albertson, Sioux City, Ia. **Plant:** 1st, Helen C. Albertson. 2nd, 3rd and 4th, Mrs. B. H. Dutton, 2937 N. 22nd Ave., Phoenix. 4th, Edith M. Royky. **Flower:** 1st, 2nd and 4th, Agnes M. Holst. 3rd, Edith M. Royky. 4th, Lonnie E. Woodruff, 705 E. Granada Rd., Phoenix.

CLASS B. COLORED PHOTOGRAPHS
Div. 1. COLORED PRINTS
Landscape: 1st, 2nd and 3rd, E. Leon Foreman, 4911 W. Flynn Lane, Phoenix. 4th, William Holloway, 1812 Crittendon Lane, Phoenix.
Plants: 1st and 3rd, Lane K. Hooker, 11627 N. 68th St., Scottsdale. 2nd, E. Leon Foreman. 4th, William Holloway. **Flowers:** 1st, Lonnie E. Woodruff. 2nd, E. Leon Foreman. 3rd, William Holloway.

Div. 2. TRANSPARENCIES
Landscape: 1st and 3rd, R. M. Shervem, 8209 E. Virginia, Scottsdale. 2nd, Mrs. Richard Enz, 105 Cairo Dr., Tempe. 4th, M. Carmell, 4237 N. 34th Pl., Phoenix. 4th, Lois Minnick, 2125 N. 69th Pl., Scottsdale. **Plants:** 1st, 2nd and 4th, Lorraine Matthes, 530 S. Alma School Rd., Tempe. 3rd, Julie Tyler, 4534 N. 15th St., Phoenix. 4th, Dorothy O'Rourke, 610 N. 4th Ave., Phoenix. **Flowers:** 1st, Beth Swanson. 2nd, Dorothy O'Rourke. 3rd, Agnes M. Holst. 4th, Lorraine Matthes. 4th, William Hunt, 10350 Andover Ave., Sun City. **Fauna:** 1st and 2nd, Laurie Kriz. 3rd, M-Sgt. John H. Walter, 10568 Oakmont Dr., Sun City.

CLASS C. OIL PAINTINGS
1st, Russell Ker. 2nd and 4th, L. C. Vannerson, 7930 E. 3rd Ave., Mesa. 3rd, Donald Denton, 6402 N. 85th St., Scottsdale.

CLASS D. WATERCOLORS
1st and 3rd, Mrs. Ray Hovatter. 2nd and 4th, H. David Binkley.

CLASS E. ANY OTHER MEDIUM
1st, Mrs. Thomas R. Palfrey. 2nd, Mrs. F. B. Griswold.

CLASS F. NATURAL DESERT WOODS
1st, 2nd, 3rd and 4th, Ed Matteson. 4th, Mrs. Ray Hovatter.

SECTION VI. EDUCATIONAL EXHIBITS
1st, Manuel C. Diaz. 2nd, Mrs. Dorothy Comins. 4th, Clifford M. Schroeder.

SECTION VII. JUNIOR CLASS—Elementary School Students' entries in any of the preceding classifications.

LESQUERELLA GORDONII

CRUCIFERAE
Mustard Family

Bead-pod
Bladder-pod

Lesquerella gordonii is one of the earliest blooming desert annuals. From February until May or June it can be found at elevations below 5000 feet in dry plains and mesas and on mountain slopes. Extensive desert areas are colored in spring by its bright yellow flowers.

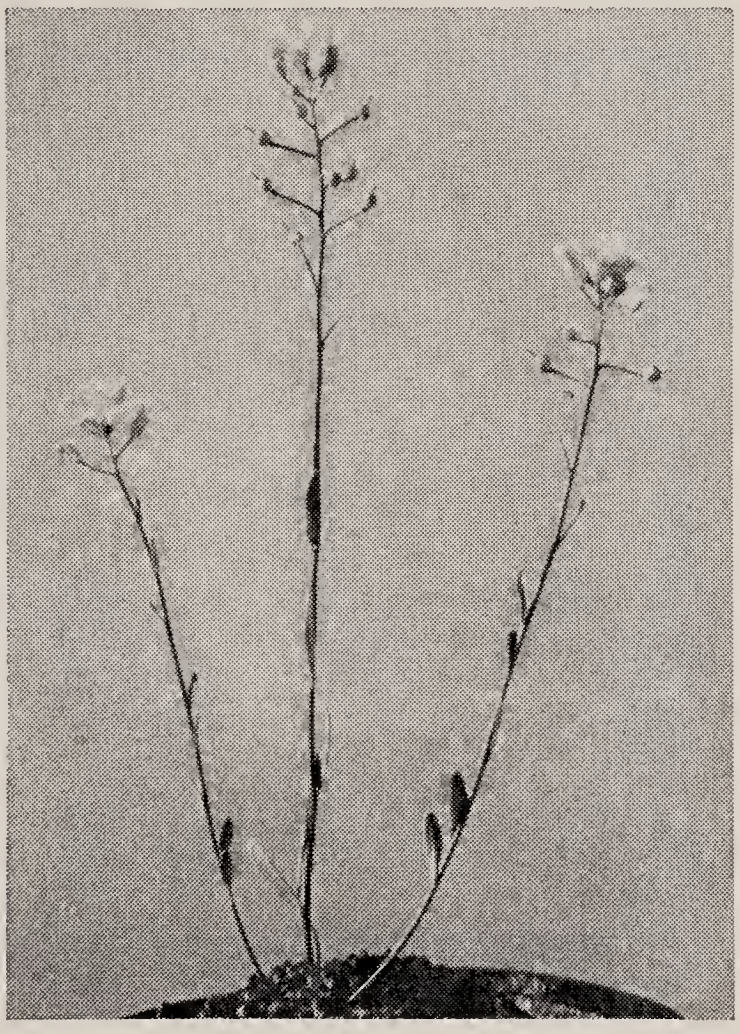
This is a small plant, four to twelve inches high, sparsely pubescent, with slender stems and lanceolate leaves. The flowers are bright yellow, growing in rather compact racemes which elongate markedly in fruiting. Petals are one-quarter-inch across.

The fruit of **L. gordonii** is globose and inflated (hence, the common names), and is about one-quarter-inch in diameter.

L. gordonii is distributed from western Oklahoma to California, and south to northern Chihuahua and Sonora in Mexico. In Arizona it is found in the southern half of the state.

The genus is named for Charles Leo Lesquereux (1806-1889), the Swiss-born paleobotanist and bryologist. At the age of twenty-five he became totally deaf. In 1848 Louis Agassiz brought him to America. Here he published valuable work on American mosses and the fossil botany of North America.

REFERENCES:
Jaeger, E. C., DESERT WILD FLOWERS
Kearney & Peebles, ARIZONA FLORA
Shreve & Wiggins, VEGETATION AND FLORA OF THE SONORAN DESERT



Plant in flower of *Lesquerella gordonii*

First Award Winners: Harold Pierson, Tom Beck, Ken Peterson, Rhea Stockton, Richard Corley, Nancy Beyer, Ann Schrieber (twice), Pat Nelson, Linda Garner, Daniel Price. Second Award Winners: Lavern Newell, Diana Greer, Mark Nelson, Cathy Enz. Third Award Winners: Diane Hanson, Donna Marcum. Fourth Award Winers: Kathy Zins (twice), Keena Keele, Kris Torrence.

SECTION VIII. OPEN. NON-COMPETITIVE

Tucson Cactus and Botanical Club.

DUDLEYA SAXOSA subsp. COLLOMIAE (Rose) Moran

Fam. CRASSULACEAE

COLLOM DUDLEYA

Dudleya saxosa subsp. **collomiae** is another member of the Crassula family found in central Arizona. It is named for Mrs. Rose Collom (See SAGUARO-LAND BULLETIN, Vol. 12, No. 5, May, 1958) who collected living material on which part of the original description is based. It is a caespitose, succulent perennial having a short branched stem with from five to ten rosettes.

The glabrous basal leaves number 20 or more in a dense rosette and are erect with often incurved tips. These leaves are lanceolate and long-acuminate, with the greatest width near the base. At first they are covered with a whitish waxy bloom on both sides, later becoming dark green or bronzed. The old dry leaves persist below· Floral stem leaves are bract-like, with an alternate position along the stem.

Flowering extends from March through May. The inflorescence consists of a straight bright red stem up to 4 dm. tall with several secondary erect racemes.

Plant in flower of *Dudleya saxosa susp. collomiae*

The corolla is tubular-funnelform with red on the outside and yellow within. Petals number five and spread slightly at the apex. There are five fleshy calyx lobes, 5 to 8 mm. long, which, like the floral stem, are bright red in color. Stamens are ten in number and not exserted.

Dudleya saxosa subsp. **collomiae** is endemic to central Arizona, being found in Yavapai, Gila, Maricopa and Pinal Counties at elevations ranging from 610 to 1830 meters (2000 to 6000 ft.). The type locality is near Payson, Arizona at an elevation of 1500 meters. This species is found on open rocky ridges and hillsides in full sun or partial shade. While it is seldom noticed except when flowering, it is common in the Mazatzal, Sierra Ancha, New River, Bradshaw and Superstition mountains. Generally it occupies higher elevations in the Sonoran Zone than does **Dudleya pulverulenta** subsp. **arizonica,** and where the ranges of the two overlap geographically, there is an elevational segregation.

This species is able to withstand extended drought and low temperature, but in cultivation it quickly responds to supplemental water during dry periods, provided the soil is well drained. An excess of water given during times of high temperatures will cause the plant to rot from the root upward to the tip.
In flower this is one of Arizona's brightest and most colorful small leaf succulent species.

REFERENCES:

Jacobsen, H., HANDBOOK OF SUCCULENT PLANTS

Kearney & Peebles, ARIZONA FLORA

Morton, C. V., DESERT PLANT LIFE, Vol. VI, No. 5, Sept. 1934

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI April, 1967 No. 4

DBG photo

Both fruit (at left) and flowers of *Lotus rigidus* are seen on this plant. Story is on page 42.

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona. P. O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXI | April, 1967 | No. 4

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GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

Editor's Notes

You may think it strange that our Botanical Garden was involved in the opening of a new road far removed from its operation.

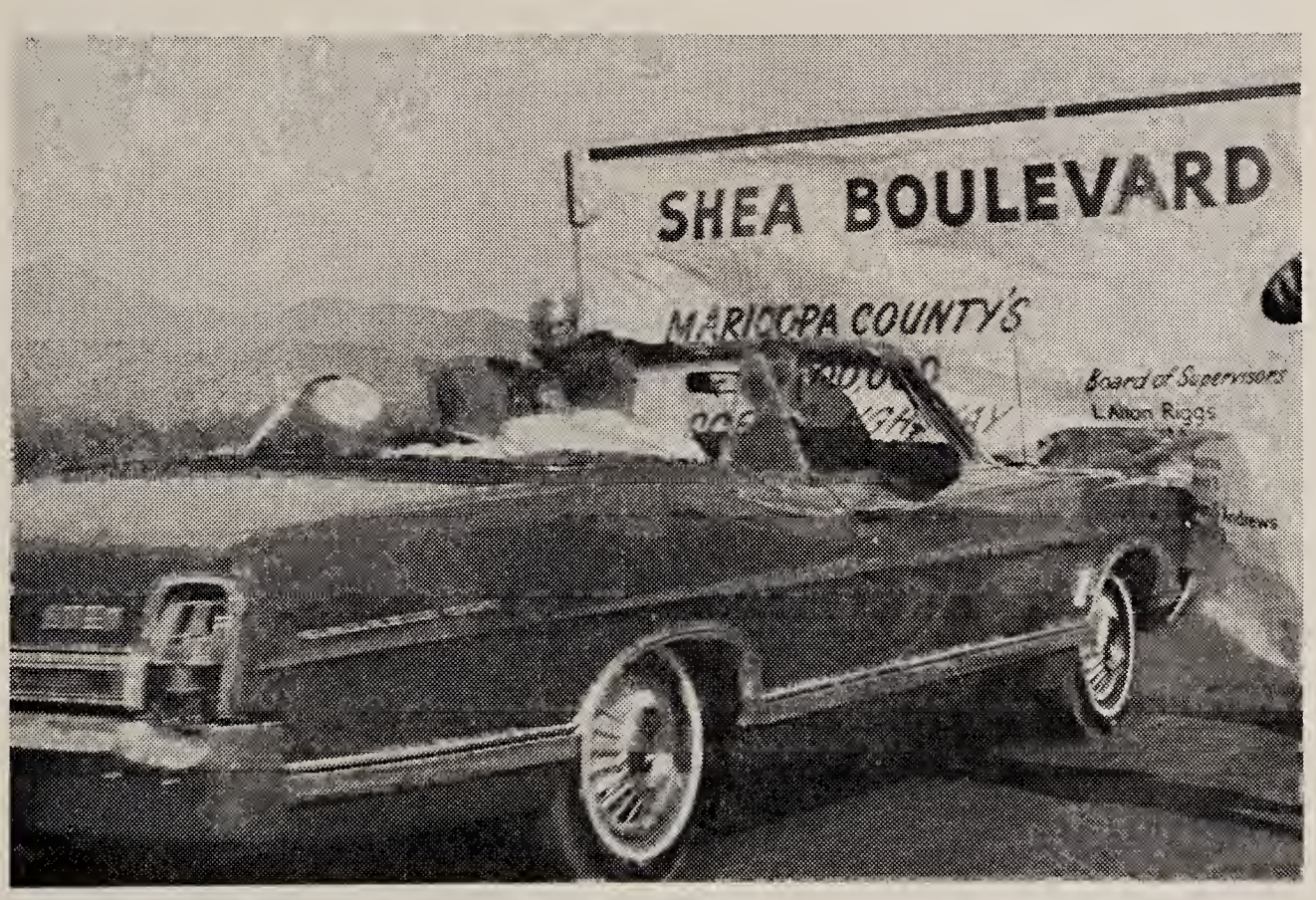
A year ago, part of the Garden staff was busy under the direction of our horticulturist, John Weber, removing cacti, ocotillo, etc., from the 60-feet wide and 4-mile long right-of-way, donated to the County by the Page Land and Cattle Co.

Over 2,000 plants were removed, transported and planted in the Garden and are now seen in flower by persons as they drive along McDowell Road and the Papago Parkway.

Road construction of the eastern extension of Shea Boulevard was to commence April 26th and we reached the four mile mark, our deadline, on April 25th, thus saving many plants from the onset of clanking road construction machinery.

Official opening of the Shea Boulevard was held February 20th with County Supervisor Mr. Barney Burns as master of ceremonies, who extended plaudits to the contractors; Mr. Fred Eldean, head of Page Land & Cattle Co.; Salt River Indian Reservation; County Engineering Department; Desert Botanical Garden and others.

The Garden is happy to have had a part in this new and exciting scenic road adjacent to the city of Phoenix.



Mary Leonhart photo

County Board of Supervisors breaking the barrier.

BEFORE AND AFTER PHOTOS OF EAST END OF SHEA BLVD.

Plants in right-of-way have been removed by staff.

Paved road now curves uphill to the west.

Note plants that we left outside of right-of-way.

Road curves gently eastward toward Beeline Highway.

Our truck bringing out a load of plants on a dusty trail.

Long grade "tops-out" at vista point overlooking valley.

DEER VETCH
DESERT ROCK PEA
BROOM LOTUS

Lotus (Greek, to cover) **rigidus** (L. rigid, stiff) is one of the fifteen species of **Lotus** in Arizona and its most zerophytic. Found growing on very rocky hillsides and canyons. 5500 feet or lower from Southern Apache County to Mohave County, south to Graham, Pima and Yuma Counties of Arizona.

Sometimes called "red and yellow pea" due to its red immature buds that later open up into rich yellow flowers from February to May. This truly pea-like flower's upper petal forms an erect "banner" while its lateral petals resembles "wings" and its two lower petals a "keel" which contains the stamens and pistil.

This showy perennial has several to many woody stems arising from its base. These semi-barren branches bear only a few small 3-5 foliolate leaflets at their nodes.

A decoction of the stems and flowers is reported to have been used by the settlers as a tonic called "Hills Tea". Cattle, sheep and deer eat the tender tips of the woody branches. It is considered good forage in over-grazed areas. Birds feed on the seeds which have spilled to the ground as the pods ripen from April to July.

This species has a large range from southern Utah and Nevada, to Arizona, southeastern California, Sonora and Baja California, that is, from the lower to the upper Sonoran deserts.

Horticulturally the shrub is rather scandent in appearance but can be kept trimmed down to 12-15 inches high and will produce many flowers, but the plant will be rather bare for seven months of the year.

REFERENCES:

Jaeger, E. C., Desert Wildflowers

Kearney & Peebles, Arizona Flora

Munz, P. A., California Desert Wild Flowers

Hermann, F. J., Notes on Western Range Forbes

DBG photo

Lotus rigidus. The shape of this shrubby plant is not one of its attractive features, but the flowers are. (See cover photo.)

ASPECTS OF THE DESERT

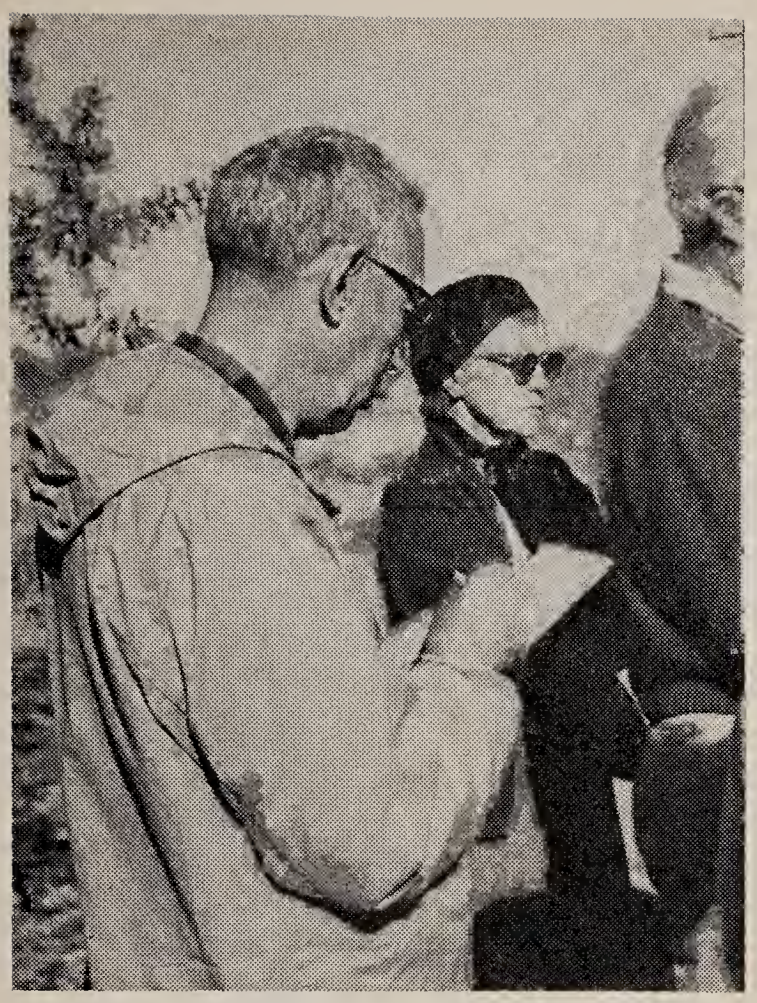
A spring scene in southwestern Arizona. Elevation is about 1900′. The spread of lavender flowers in the foreground is Sand Verbena *(Abronia villosa)*. Yellow flowers are *Geraea* or Desert Sunflower. The white ones are Dunes Primrose *(Oenothera deltoides)*.

DESERT FIELD TRIP

After each of our three six-class courses in desert flora, the "students" have an all-day field trip. We've reported them briefly in the past, but on the February 8 trip Garden Member Fred Baselt came along and "candid camera-ed" the doings. Now see what Fred saw.

Found, an uprooted fish-hook cactus. Director and "Prof" W. H. Earle holds it out for examination. Saved a lot of stooping.

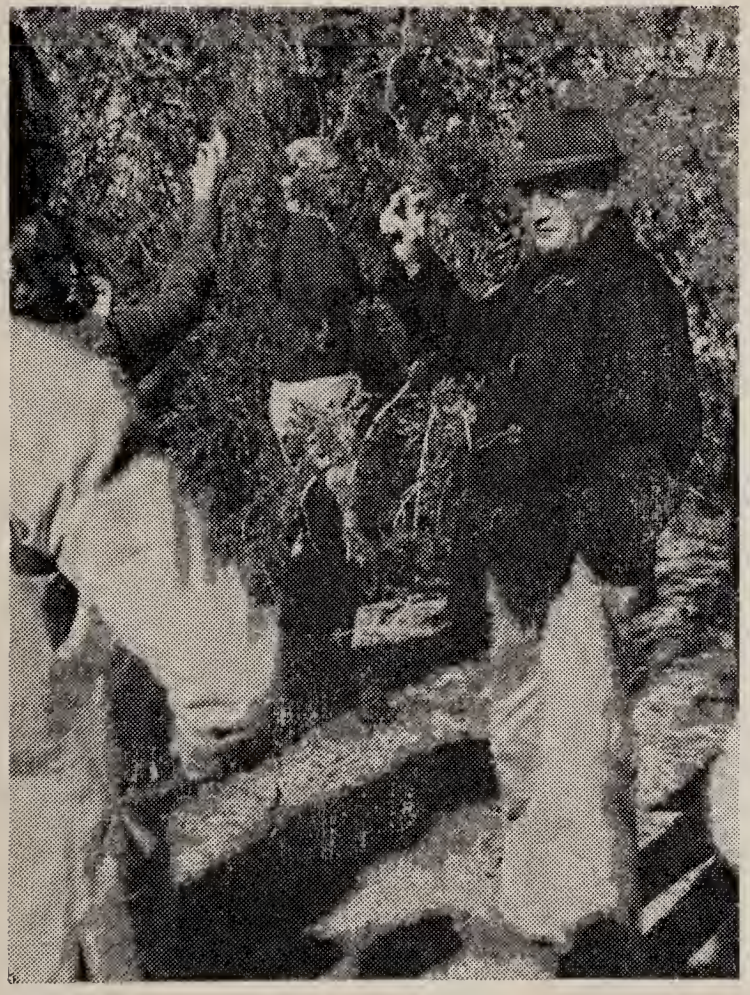
"Wow! These yucca leaves are sharp!" A practical demonstration?



Note-taker, "Ratany, K-R-A-M-E-R-I-A . . . "

Lunch break—in style and comfort!

And a junior-junior-grade field botanist.



"Of course, you all can identify an ironwood."

Nolina bigelovii in its natural habitat. The two plants in the foreground are approximately nine feet tall. Trees in the right background are juniper. The photograph was taken near Wikieup, Arizona, which is somewhat north and east of the type locality.

Nolina bigelovii (Torr.) Wats. LILIACEAE

BIGELOW BEAR-GRASS

Nolina bigelovii is a normally unbranched shrub or, in some locations, a small tree. The trunk is a woody caudex covered by old dried leaves, which are reflexed. Overall height may reach more than four meters, terminating in a crown of leaves in an apical rosette. The numerous grasslike leaves are narrowly linear, flat, and not very rigid. They measure from 7 to 12 dm. in length and to 25 mm. in width. Margins of the long and narrow leaves become filiferous with age. Flowering occurs from May through July. Numerous greenish-white flowers are borne in a panicle 6 to 8 dm. long atop a stalk of near-equal length. The flowers are small, the sepals and petals being not more than 4 mm. in length. Stamens are not exserted. Fruit is a dry capsule 8 to 13 mm. in diameter, having three cells and three thin, membranous wings. Each cell contains a single light gray seed, round to ovate in shape and to 3.5 mm. in length.

Nolina bigelovii extends from western Arizona into southeastern California, and south into Sonora and Baja California, Mexico. In Arizona the range is confined to Yuma, Mohave and western Yavapai Counties, and in the lower elevations within the Grand Canyon in Coconino County. It is found on gravelly and rocky slopes or in canyons at elevations ranging from 150 to 1050 meters, and is limited to the Lower Sonoran Zone. Type is from the Bill Williams River which forms the border between Mohave and Yuma Counties.

This species can be utilized in landscaping the desert garden in the same manner as **Yucca elata.** These two plants are very similar in appearance, but easily distinguishable in flower or in fruit. **Nolina bigelovii** is a plant of interesting form, having a large, flowering panicle that never fails to attract attention. It is adaptable for basic foundation planting or for treatment as an individual specimen shrub.

While growth rate is slow, germination from fresh seed is excellent. Well-drained soil should be provided and water applied frequently during dry periods until the plant is well established.

Fine examples of this species are to be seen in Palm Canyon of the Kofa Mountains, and in the Tinajas Atlas Mountains (Yuma County) of Arizona, and also in the Joshua Tree National Monument of southeastern California.

REFERENCES:

Benson & Darrow, Trees and Shrubs of the Southwestern Deserts.

Kearney & Peebles, Arizona Flora

Little, E. L., Southwestern Trees

GARDEN ACTIVITIES

APRIL

Sun.	2nd	ILLUSTRATED LECTURES—Arizona Scenics	3 & 4
Tues.	4th	CACTOMANIACS meeting	8 P.M.
Wed.	5th	CLASS—All-day Desert Field Trip	9 A.M.
Thurs.	6th	ILLUSTRATED LECTURE—Leaf Succulent Plants	3 P.M.
Sun.	9th	ILLUSTRATED LECTURES—Leaf Succulent Plants	3 & 4
Thurs.	13th	ILLUSTRATED LECTURE—Unusual Cacti in Flower	3 P.M.
Sun.	16th	ILLUSTRATED LECTURES—Unusual Cacti in Flower	3 & 4
Tues.	18th	ARIZONA ORCHID SOCIETY meeting	8 P.M.
Thurs.	20th	ILLUSTRATED LECTURE—Collecting Plants in Mexico	3 P.M.
Sun.	23rd	ILLUSTRATED LECTURES—Collecting Plants in Mexico	3 & 4
Thurs.	27th	ILLUSTRATED LECTURE—Arizona Cacti in Flower	3 P.M.
Sun.	30th	ILLUSTRATED LECTURES—Arizona Cacti in Flower	3 & 4

MAY

Tues.	2nd	CACTOMANIACS meeting	8 P.M.
Tues.	16th	ARIZONA ORCHID SOCIETY meeting	8 P.M.

OPUNTIA LAEVIS — CACTACEAE

SPINELESS PRICKLY-PEAR

A fairly large sprawling prickly pear up to 6 feet high and 5 feet in diameter, with loose semi-erect stems bearing narrow obovate pads 7″ to 9″ long and 4″ to 5″ broad. Areoles are few, bearing. short tuffs of yellow glochids and short spines, one to two or three when present, from the areoles of the pad.

The large light yellow flowers appear along the upper edges of the pads during late April and early May. The reddish to purple fruits ripen in July and are quickly eaten by browsing animals, rodents and birds.

The plant has a large range through southwestern Arizona but has been depleted during periods of drought by cattle, deer and javelinas. It can only be found now in very inaccessible canyons and canyon ledges or under heavily branched trees.

Horticulturally it is a good border plant due to lack of large quantities of spines and glochids, characteristic of most of the prickly pears. It is a plant that needs good drainag and very little water. Grows well in the sun or shade but flowers profusely when in the sun.

Type locality — Tucson, Arizona

Distribution — South Central Arizona to southwestern New Mexico and Sonora, Mexico

REFERENCES:

Benson L. "The Cacti of Arizona"
Earle, W. H. "Cacti of the Southwest"
Britton & Rose "Cactaceae"

A pad (above) and a whole plant of *Opuntia laevis,* photographed here in the Garden.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI May, 1967 No. 5

D.B.G. photo

Dasylirion wheeleri flanked by *Agave lechuguilla* with *Carnegiea gigantea* in background. Story on p. 55.

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsors of the Desert Botanical Garden of Arizona. P. O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXI | May, 1967 | No. 5

Arizona Cactus and Native Flora Society

EXECUTIVE BOARD

Chairman of Board John H. Eversole | President ..... Lou Ella Archer
Vice President ..... John H. Rhuart | Treasurer ..... Tom Goodnight
Secretary ..... Angela Bool | Chief Counsel ..... Richard B. Snell
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Desert Botanical Garden of Arizona

STAFF

Director ..... W. Hubert Earle
Horticulturist ..... John H. Weber
Secretary ..... Marian R. Burgess
Bookstore ..... June Hendrix
Maintenance and Bookstore ..... Wm. C. Hendrix
Maintenance and Bookstore ..... Lynn Trainum
Student Horticulturist ..... Lyle McGill

Be sure to attend ANNUAL MEMBER'S meeting Sunday May 7th, 3:00 P.M. Webster Auditorium.

Editor's Notes

The Desert Botanical Garden has financing problems today similar to those of other non-profit educational institutions which depend for their income in whole or in part on endowments, grants, or contributions.

Income for the Garden is derived from the Webster Trust, memberships, voluntary contributions, and profits from the bookstore and from wholesaling of cactus seed (the latter being an unusual operation for any botanical garden.)

The Garden, opened in 1937, was closed during World War II and reopened in 1946 with a staff of two persons. The staff was increased to three in 1952. It has gradually grown until it now consists of six full-time and two part-time persons. We have been most fortunate in having a great number of our members serve on a voluntary basis during the past years, and will always need their generous and appreciated services.

Everyone has become aware of the tremendously rising costs of operations for all institutions, and all involved are constantly studying possible ways to find increased income for their operations. The Garden's financial report, in the next issue of the Bulletin, will undoubtedly reflect how salaries, taxes, insurance, and maintenance supplies now absorb most of our income, leaving only a small remainder to be set aside in reserve for new buildings, improvements and research.

To be worthy of its name, a botanical garden must play its part as an attraction and source of education and information for the general public, and also as an institution of botanical learning and research. It must publish periodicals and books, and maintain an extensive library. The Desert Botanical Garden is active in all these categories, and will continue to be, working, moreover, on additional projects that will present themselves in time.

The Garden, in its thirty years of existence, has built a good image both locally and world-wide. It has always been a "must" as a tourist attraction, and its guest book records daily many visitors from foreign countries. Years ago, when there were only a few attractions in Phoenix, the Garden absorbed the interest of a great portion of the visitors and the local population. Now, as the city has grown, attractions and activities have multiplied in greater proportion than the increase of tourists and local population. This is good, of course, in that there is now something of interest for nearly everyone, but it creates a situation where all attractions have to "share" the visitors, and several institutions have reported declining attendance.

The above-mentioned decline in attendance has affected the Garden as well, to a slight degree, and it is the visitors to the Garden who supply a good part of our income. To be precise, sixty-five percent of the Garden's income comes from visitors.

We, as we look into the future, realize we will have to acquire more endowments and contributions, and must seek grants. A number of persons in recent years have, in their wills, set aside funds from their estates to be used by the Garden at its discretion. Others are donating their libraries, or making specific endowments. Such gifts are tax-exempt, as the Garden is a non-profit institution, operated by a non-salaried Board of Directors.

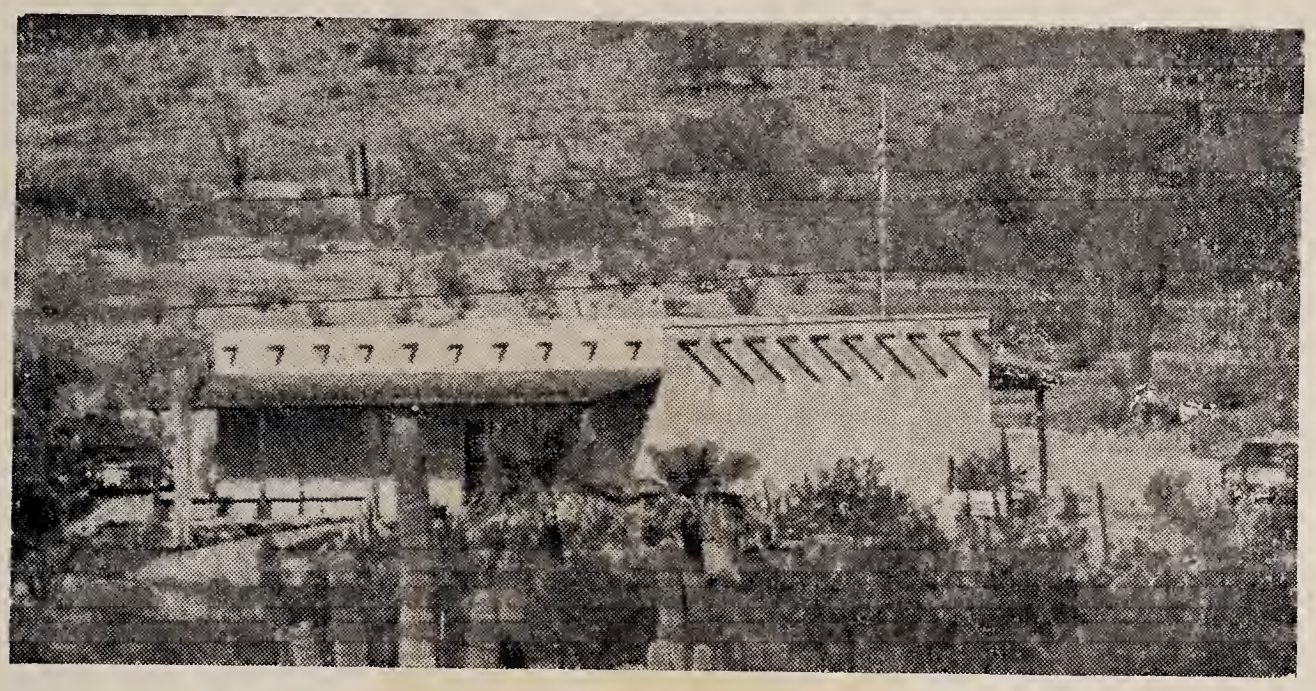
Gifts to the Garden are becoming more and more vital to its existence. Your consideration in the matter of bequests would be most gratefully appreciated by the Board.

The growth of the Garden since it reopening under W. Taylor Marshall (Director until his death in 1957) is evidenced in some of the following improvements made possible by Garden earnings and gifts. Other buildings are on the drawing board, awaiting gifts and grants.

Much-needed rest rooms built in 1950.

6000 sq. ft. aluminum lath house, a type pioneered by the Garden and built in 1951 for protection of tender plants.

The Director's residence, built in 1952.



More than 750,000 people have passed through this Visitors' Building since it opened in 1961.

Another aluminum lath house, 5,000 sq. ft. for the growing of leaf succulents.

Red-tipped wands of the ocotillo waving in the Southwest desert tell that spring is here. Creosote bushes with yellow flowers are in the background. Spiny teddy-bear cholla, compass barrels, tall saguaro, bur-sage and brittlebush complete the scene.

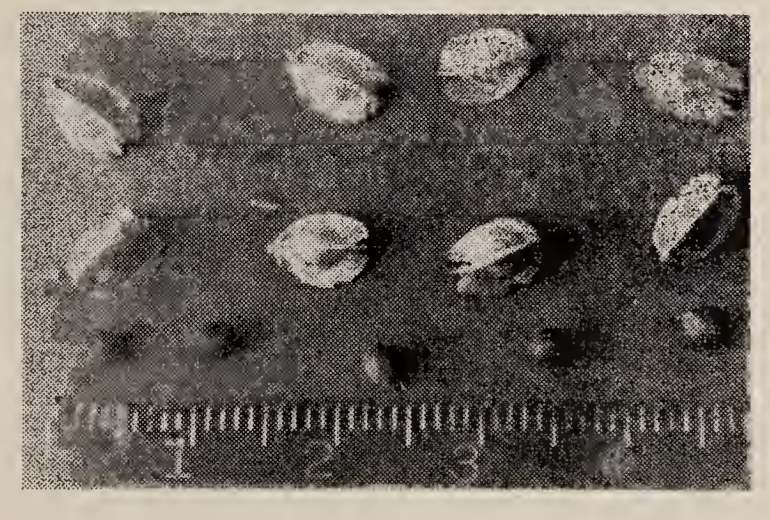
DASYLIRION WHEELERI Wats. Fam. Liliaceae

SOTOL

Sotol, *Dasylirion wheeleri,* in flower. Its fruit capsules and seeds are shown at lower right.

DASYLIRION WHEELERI

Dasylirion wheeleri, commonly called "sotol", is a woody perennial of the Lily Family that has a large caudex which may reach one meter above ground. Atop the woody caudex is a large rosette of numerous elongated leaves, measuring to one meter in length and to 20 mm. in width. These rather rigid glaucous leaves are armed with upward-curved prickles about 3 mm. in length and yellow to brown in color. The staminate and pistillate flowers occur on different plants and in dense elongated panicles. The perianth of thin white sepals and petals is from 2 mm. to 2.5 mm.



in length and the six stamens are exserted. The very numerous flowers may be present from May to August. The fruit is a small indehiscent three-winged capsule having a single cell, and is 6

mm. wide and 9 mm. long. Contained within the cell is a solitary, trigonous brown seed about 3 mm. long.

This species of sotol ranges from western Texas into New Mexico and Arizona, and south into Sonora and Chihuahua, Mexico. In Arizona the distribution covers the southeastern quarter of the state at elevations from 900 to 1800 meters (2970 to 5940 ft.). It is found on rocky and gravelly hillsides and slopes in Gila, Graham, Cochise, Greenlee, Pinal, Pima and Santa Cruz Counties.

Dasylirion wheeleri has been extensively used for landscaping desert gardens. It is used primarily for the plant form, and not for flowering. While it is similar to some yuccas in appearance, it can be differentiated by the marginal prickles along the leaf. As a specimen shrub, it may be planted in the garden proper or in patio and porch containers.

Germination and growth rates are slow, even under optimum conditions. Seedlings and young plants should be watered regularly during periods of active growth and should be planted in soils coarse enough to provide excellent drainage.

REFERENCES:

Benson & Darrow, THE TREES AND SHRUBS OF THE SOUTHWESTERN DESERTS

Kearney & Peebles, ARIZONA FLORA

OPUNTIA PHAEACANTHA — CACTACEAE

Purple-fruited Prickly-pear

A six-foot-wide clump of *O. phaeacantha* with smooth purple fruit

Opuntia phaeacantha (Greek, phae - shining, acantha - spine) is a sprawling or prostrate prickly pear, usually low to to the ground but sometimes up to eighteen inches, with its joints, on edge, creeping along the ground and forming clumps four to ten feet in diameter.

The pads, or joints, are flat, obovate, about a half-inch thick, and up to nine inches (or occasionally more) in length. They are somewhat longer than broad, usually smooth, and have many areoles one to two inches apart each bearing prominent yellow-to-brown glochids. Two

O. phaeacantha branch. Note cluster of brown glochids in each areole.

to four stiff, erect, two-inch long spines are found per areole along the edges of the joints, whereas the spines on the sides of the joints are deflexed.

Flowers appear during April and are most attractive, being either red, dusty rose, copper or yellow in color and two to three inches in diameter. In the low deserts they are open for only one day, but in higher elevations they remain open for several days. Flowers are followed by dark purple fruit, two inches long, which ripen in late July and early August. The fruit have few glochids, and contain many yellow seeds.

Opuntia phaeacantha is quite common throughout the southwestern states at 1000-4000 ft. elevations on either rocky hillsides, sandy washes or desert grasslands. It is Arizona's most abundant prickly pear, covering a wide swath across the state from Lake Mead southeast to Benson and the Chiricahua Mountains. Its fruit and seeds are eaten by cattle, deer, rodents, javelina and birds. They are also used in making candy, jellies and syrup. Lost travelers in the desert can survive if they will seek out these fruits, remove the glochids, and eat the juicy pith.

Some of the plants have "escaped" to the higher 7000-ft. plateaus of northern Arizona where they have hybridized freely with other species, making accurate identification difficult in the area.

Type locality: Santa Fe, New Mexico, along Rio Grande.

Distribution: Texas, New Mexico, Colorado, Utah, Arizona and northern Mexico.

REFERENCES:

Benson, L., CACTI OF ARIZONA.

Earle, W. H., CACTI OF THE SOUTH WEST.

LOPHOPHORA WILLIAMSII — CACTACEAE

PEYOTE
MESCAL BUTTON
DUMPLING CACTUS

Lophophora (two Greek words, crest-bearing) **williamsii** is a small biscuit-shaped spineless cactus that has had more exaggerated stories written about it than all other cacti combined.

It was first described by Lemaire in 1845 as a solitary, globular plant two to four and a half inches wide, of dull bluish green color, with a thick tap root that exudes a sticky substance when injured. The plant has seven to thirteen flattened ribs and indistinct tubercles.

Pink flowers rise from the apex of the plant in late summer and early fall, followed by naked pink fruits about three-quarters of an inch long and one-quarter thick, which emerge from tufts of hairs.

This Mexican plant ranges from cen-

D.B.G. photo

Lophophora williamsii with half-inch wide pink flower.

D.B.G. photo

In stony soil *L. williamsii* finds very effective camouflage.

tral Mexico to southern Texas (where it has nearly disappeared, due to the depredations of commercial collectors).

The word "peyote" is derived from the Aztec "peyotl", and the plant was used in early religious ceremonies. The use, or "peyote cult", has spread northward in this century and is now known among some of the northern Indian tribes of the United States. Strangely enough, we have collected the plants in central Mexican communities where the Indians had no knowledge of the plant's properties or uses.

The peyote has several alkaloids in its above-ground portion that have been studied for years for their chemical, medicinal and therapeutic properties. Chew-

Habitat of *Lophophora williamsii,* near El Huizache, S.L.P., Mexico

ing of the dried segments is supposed to produce hallucinations and visions in vivid colors, but the normal effect is simply to upset one's stomach.

The plant has been classified by our government as a narcotic (yet it is not habit-forming) and is on the prohibited list of plants that are not allowed to be transported across state lines or retained in one's possession.

The Garden has displayed several fine specimens in the past, but these had to be removed to conform with the government's regulations. Probably this little plant will be hard to find in collections in the future.

Type locality: Not cited.

Distribution: Central Mexico to southern Texas.

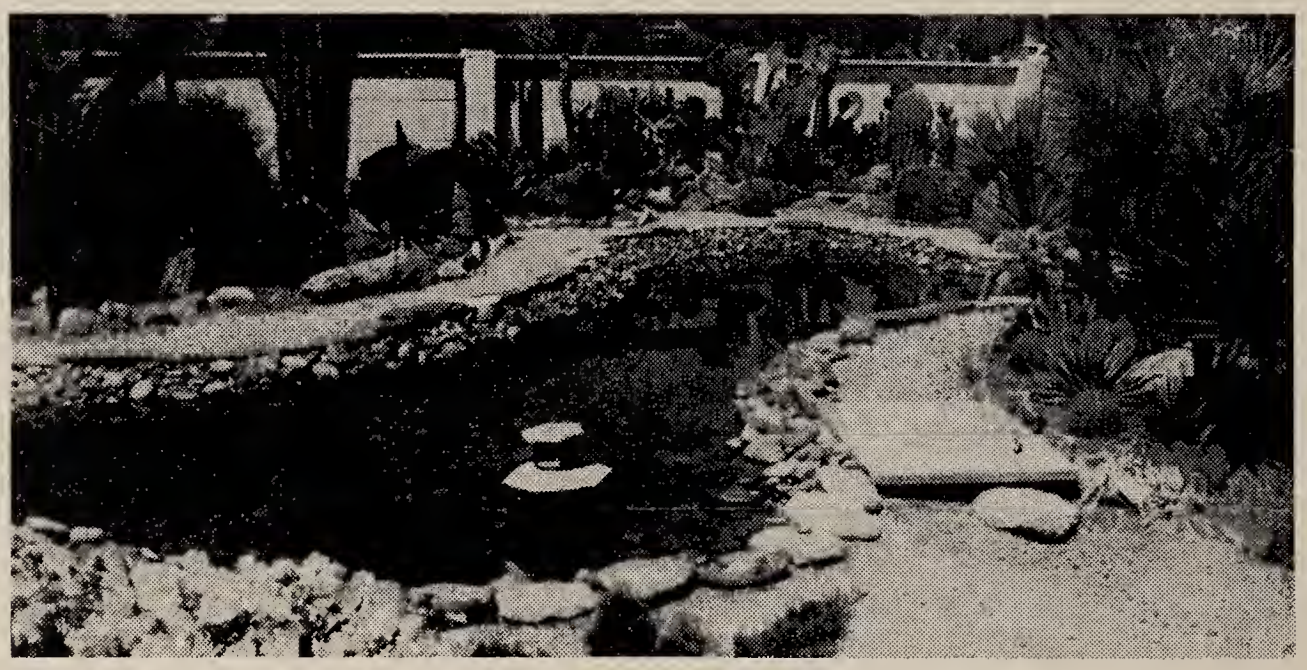
REFERENCES:

Britton & Rose, CACTACEAE
Schulz & Runyon, TEXAS CACTI

MEMBER'S GARDEN

Six years ago, Mr. Carl A. Norgren came here from Colorado, purchased land in the Casa Blanca Estates, and started the garden pictured here. Interestingly, an airplane landing strip ran through the portion of his property in the picture below.

Century plants and cacti complement the clipped lawn.



Cacti reflected in a meandering pool, unusual and attractive.

Husky saguaro add to the impressiveness of the Norgren garden.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI June-July, 1967 No. 6

D.B.G. photo

Yucca recurvifolia, an excellent plant for desert gardens. See p. 70.

REG MANNING

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W. HUBERT EARLE, Editor
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Volume XXI | June-July, 1967 | No. 6

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Desert Botanical Garden of Arizona

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Maintenance and Bookstore.....Lynn Trainum
Student Horticulturist .....Lyle McGill
Student Horticulturist.....Stanley C. Scott

Editor's Notes

OUR FISCAL YEAR which ended April 30th was "in the usual black", but quite close to "the red" because of increased costs of operations, an experience common to all businesses today. Strangely, attendance was off 10 percent but income was the highest in our history.

Publicity in national magazines, newspapers, radio and TV was excellent, and continues to grow each year. Many photographs by your Editor were used in various media during the year.

PROJECTS COMPLETED were: Construction of the Epiphyllum House pictured on page 69, which is operating beyond our fondest expectations, and the plants in it are showing wonderful growth.

Electricity was installed in the Cacti House this spring via underground cable. Lights will be used for evening classes and for heating. It was hoped to install infra-red heating lamps, but cost and stand-by electrictiy was prohibitive.

Last summer the staff painted the auditorium interior, its first paint job since construction in 1938. It is now much brighter for class work and lectures.

TWELVE FOUNDATIONS in this country were approached in April for possible grants to be used for research. Ten replied that they were committed at present, but would consider our requests in the futrure.

VIP'S HAVE BEEN MANY during the past year, and 1967-68 will see many more here. On June 17th Dr. Howard Scott Gentry, Botanist of the New Crops Research Branch, USDA, in Beltsville, Md., will visit the Garden for several days to check our Agave collection as well as the Agaves recently shipped to the Garden by Dr. Gentry. The Garden is becoming a world center for the growing and study of Agaves. A field trip will also be made to gather Arizona Agaves.

On June 20, Mr. Adrian Thompson, Permanent Secretary, Ministry of Agriculture and Natural Resources, Guyana, will visit the Garden and the Valley for several days to study the use of our local plants in landscaping around business buildings, industrial sites, homes, parks, etc. His visit is sponsored by the Agency for International Development, U. S. Dept. of Agriculture.

A LIBRARY BUILDING is to be constructed this summer, as announced by the Board on the following page. This building will be located in the patio adjacent to the auditorium and office. We are all quite excited at the prospect of having an entire building for our library. Sketches of the library will appear in the next issue of the Bulletin.

NATIVE PLANTS are now protected by an Arizona law which went into effect June 12. "Cactus rustlers" will be faced with fines up to $300. Legal removal of plants may be done only when a permit is issued, and official tags must be attached to each plant moved. The new law is the result of work by many groups. The use of tags was suggested by the Garden.

MEMBER'S ANNUAL MEETING

The Meeting was held Sunday, May 7th, with a better than usual attendance. Mr. John Rhuart, Vice President, presided in the absence of Secretary Mrs. Angela Bool whose husband, Mr. Herb Bool, was hospitalized at the time.

An unusually large volume of mailed-in votes were tabulated by Miss Eleanor Sloan and Mrs. F. M. Feffer. Incumbent board members, Mrs. Lou Ella Archer, Mrs. Angela Bool and Mr. Richard B. Snell were re-elected for three-year terms.

Reports of the past year's activities and plans for 1967-68 were given by the Director.

THIRTY-SECOND ANNUAL BOARD MEETING

Members of the Executive and Advisory Board, their wives and husbands, met for another successful dinner meeting on June 2nd in the El Concho Club, Hotel Westward Ho, with Chairman John H. Eversole presiding over a fast-moving and fruitful meeting.

Financial report was given (see page 65), which will soon be audited.

All incumbent officers were re-elected for the coming year.

The Board voted to supply this fall an educational exhibit of local plants and their uses for an interpretation center on the nature trail at the soon-to-be-opened Pioneer Arizona Foundation, 32220 N. Black Canyon Highway.

Tentative plans for a new Library Building, drawn by Architect Les Mahoney, were approved and will be finalized. Bids will be asked for in late July, and construction will begin in August.

This will be another milestone in the Garden's continuous growth. The Library will house our large number of books and periodicals, and also the vast library of Mr. M. C. Richter of Santa Barbara, California which he has willed to the Garden. His library has recently been enlarged by the acquisitions of the Scott Haselton library of Pasadena, California, and that of P. Montandon, Editor of "Cactus", the publication of the Association Francaise des Amateurs de Cactees et Plantes Grasses.

The Garden will shortly have the world's most extensive library devoted to cacti and other desert plants, which will be used by members, students, botanists and researchers. Cost of the building will be between twenty-five and thirty thousand dollars.

The Board has prided itself on not having to initiate any fund-raising drives for the past fifteen years. It has always drawn on its Building Fund for new buildings, and many have been built during the past years.

No fund-raising campaign is contemplated for the library, but this project has become a matter of great public interest. Many persons are already contributing to this worthwhile library, thus allowing part of our Building Fund to be used for other construction jobs this summer. We are delighted that others share our enthusiasm. All contributions are, of course, tax-deductible, as the Garden has been designated a non-profit educational institution since 1935.

ARIZONA CACTUS & NATIVE FLORA SOCIETY, INC.
SPONSORING THE
DESERT BOTANICAL GARDEN

FINANCIAL REPORT

5/1/66 — 4/30/67

	Comparison 1966 - 1967	1965 - 1966
ASSETS		
Accounts Receivable	$ 109.07	$ 319.55
Inventory	8,983.54	7,451.52
Deposit Industrial Insurance	136.00	96.00
Cash:		
Valley National Bank (Checking)	3,770.64	5,727.70
Valley National Bank (Cert. of Deposit)	12,000.00	0.00
Valley National Bank (Saving Account)	1,625.46	13,132.35
1st Federal Savings, Tempe (Cert. of Deposit)	2,800.00	0.00
1st Federal Savings, Tempe (Savings Account)	70.36	2,482.62
Petty Cash & Cash Register Money	289.00	289.00
	$29,784.07	$29,498.64
LIABILITIES		
Accounts Payable	152.52	1,639.03
Arizona State Withholding Tax	16.31	18.47
Industrial Insurance Payable	23.34	18.50
	$ 192.17	$ 1,676.00
INCOME		
Retail Sales	$42,868.47	$43,408.30
Wholesale of Garden Books	1,833.81	1,046.90
Wholesale Seeds	2,398.48	2,625.00
Contributions	76.60	73.21
Voluntary Admissions	10,794.08	11,984.52
Memberships	4,420.00	3,924.50
Endowments	13,700.00	10,700.00
Interest	608.57	692.31
Miscellaneous	23.45	224.36
	$76,723.46	$74,679.10
EXPENDITURES		
Purchase for Bookstore resale	$23,444.26	$23,961.15
State Sales Tax at Bookstore	1,314.79	1,309.63
Second printing, CACTI OF THE S/W	2,053.08	162.00
Gross Wages	31,987.48	27,935.97
Payroll Social Security Contributions	1,205.23	986.38
Office Supplies	472.01	680.37
Library Periodicals	125.65	124.45
Monthly Saguaroland Bulletin	1,672.93	1,358.67
Utilities	1,553.92	1,487.31
Telephone	765.95	681.79
Fleet Auto—Expense	1,457.63	1,483.65
Insurance—Life, Accident & Hospitalization	2,405.25	1,919.83
Insurance—Industrial compensation	278.55	219.39
Insurance—Fire, Theft, Liab., Property Damage	1,252.47	1,427.10
Accountant	900.00	1,200.00
Travel, Entertainment, Public Relations	1,782.58	1,372.95

Miscellaneous	300.47	421.69
Advertising	640.08	636.86
Garden & Building Maintenance	1,954.54	1,121.05
Capital Improvement	811.22	6,909.75
Property Tax & Lease	36.74	32.00
	$76,414.83	$75,431.99

Above figures subject to audit.

ATTENDANCE of 81,293 persons contributed $10,794.08 or .132 per person.

SALES of $42,868.47 divided by 81,293 persons averaged .527 per person.

MEMBERSHIPS—810 (1966-67) 712 (1964-65)
780 (1965-66) 688 (1963-64)

ANTICIPATED BUDGET 1967 - 1968

Bookstore Sales	$42,000	Purchases for Bookstore	$22,000
Wholesale of Seeds	2,400	General Operating	7,000
Wholesale of Books	1,800	Fleet operation	1,200
Contribution	500	Utilities	2,300
Voluntary Admissions	12,000	Insurance	3,800
Memberships	4,500	Sales Tax	1,250
Endowment	13,000	Salaries	34,000
	$75,200		$71,350

The following groups met **at the Garden:**

102	Elementary School classes	3,997
16	High School classes	381
21	University classes	549
15	Desert Plant classes	290
70	Illustrated lectures	2,163
8	Orchid Society Meetings	205
8	Cactomaniac meetings	443
5	Civic Groups	127
5	Garden Clubs	91
14	Girl Scout Groups	228
9	Boy Scout Groups	106
1	Board Meeting	14
1	Desert Institute class	59
	Annual Cactus Show	11,990
6	Out of State Bus Tours	204
1.	Y.M.C.A. Camp Group	80
3	Tuba City, Navajo Classes	160
1	Survival Class	16
3	Church Groups	43

Lectures were given to the following groups **away from the Garden:**

1	Church Group	38
1	Garden Club	18
4	Civic Groups	81
1	Cactus Club	66
2	Conventions	207
4	Field Trips	62
6	High School Classes	882
1	Garden Course	96
2	Girl Scouts Roundups	325
1	Bonsai Society	59
1	Desert Institute	86
1	Radio Show	

The Garden Staff participated in Beautification programs, Save Camelback Project, new State plant removal laws, etc.

1967 - 1968 IMPROVEMENT PROGRAM

Build Library Building
Build equipment carports
Build raised Agave beds
Build "Arizona section" Ramada
Build and landscape garden entrance from Parkway
Paint interiors of Bookstore and Apartment.

ASPECTS OF THE DESERT

Spikes of cream-white blossoms, towering eight feet above the desert in late spring. This is *Yucca arizonica,* a beauty of southern Arizona and northern Sonora at elevations of 4000 feet and less.

OPUNTIA ERINACEA CACTACEAE

Hedgehog Prickly Pear

Opuntia erinacea (the specific name means "hedgehog") is quite common on most of the high windswept deserts of northwestern Arizona, southern Utah, southern Nevada, eastern California and western Colorado, at elevations of from 3000 ft. to 5000 ft.

It is a low-growing plant forming clumps a foot or more in diameter, and in its native habitat a height of less than a foot. In the Garden, however, the plant reaches two feet, due probably to the absence of strong desert winds.

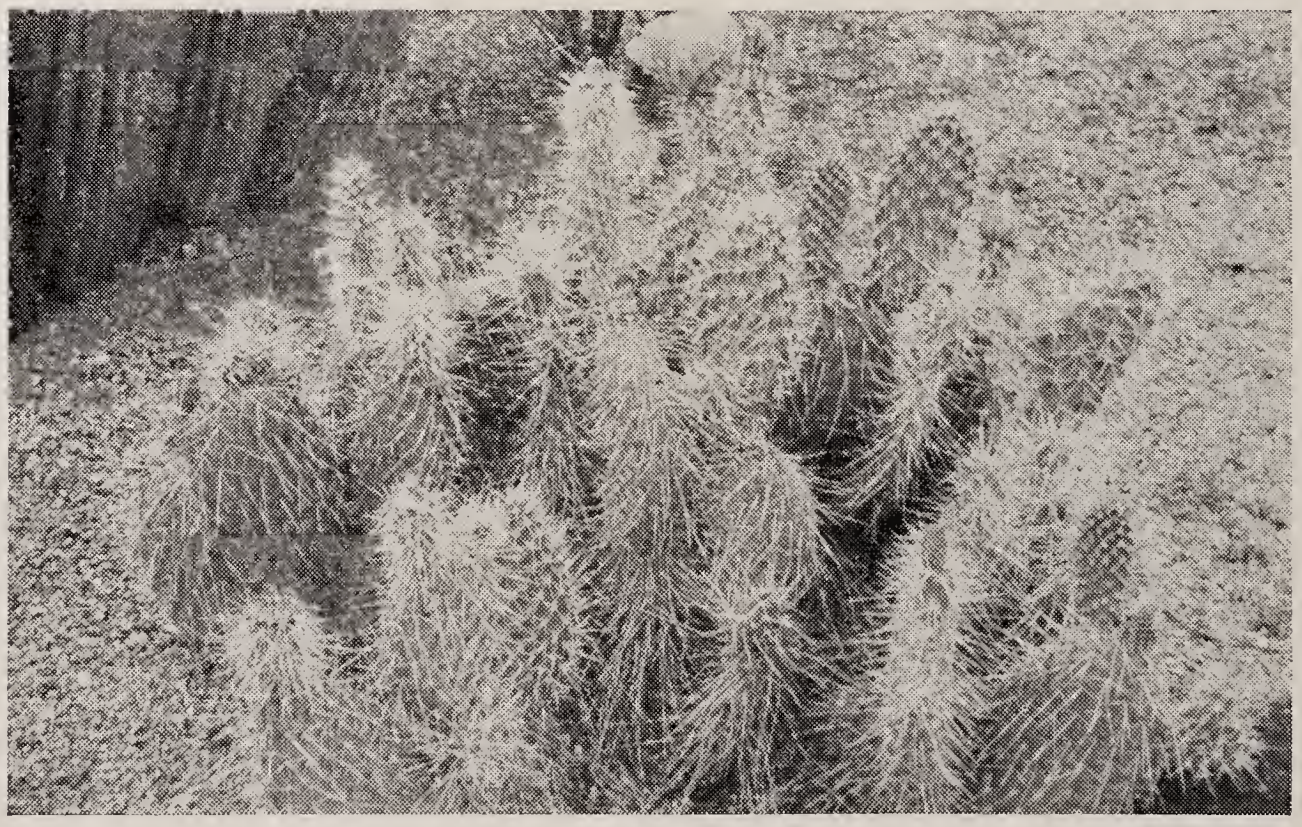
Stems are ovate to oblong, flat, and 3 to 5 inches long. The numerous spines are white or brownish with brown to black tips, and are slender and stiff, 2 to 4½ inches long. The glochids are numerous.

The large flowers, nearly three inches across, are either rose-red or yellow, and the fruit is very spiny and dry.

Type locality is on Mojave Creek, Calif.

REFERENCES:

Benson, L., CACTI OF ARIZONA
Earle, W. H., CACTI OF THE SOUTHWEST
Kearney & Peebles, ARIZONA FLORA



DBG Photos

O. erinacea growing in the Garden. Above is the yellow blossom of this particular plant.

A HOUSE IN A HOUSE

—for our Epiphyllums

Last fall we built this 320-sq. ft. house inside our Cactus Lath House and equipped it with a thermostatically controlled evaporative cooler. This is the only way we can grow and display epiphyllums and other tropical cacti in our desert climate.

Epiphyllums in bloom are nothing less than gorgeous, and well rate the name "orchid cactus". The flowers shown on this page are a few of the twenty budding plants the Garden received as a gift from Mr. Sherman E. Beahm of Pasadena, Calif.

or multiple stemmed plant of medium size. The long flexible leaves are green to dark green and slightly glaucous on emergence. These are relatively broad (50 mm.), flat, and recurved with an entire margin terminating in a rigid sharp point. The inflorescence is a narrow-branched panicle raised on a short stalk. Creamy-white flowers are pendant from the branches and the petals are not wide spreading. Flowers are of short period, soon becoming dry and detached. The fruit is an oblong dry capsule with six winged ribs and is indehiscent, not splitting open to release the seed. Capsules are not known to be produced in cultivated plants in regions distant from the habitat. The flat thin seed is dull black with a slight marginal wing. It is about 7 mm. in diameter.

DBG Photo

Flowers of *Y. recurvifolia,* with a petal of the upper flower lifted to show arrangement of pistil and stamens.

Yucca recurvifolia has a very limited distribution in habitat type as well as in area. It ranges along the coast of Georgia and Mississippi from the mouth of the Mobile River to the mouth of the Mississippi River. It is found also on adjacent sea islands.

Since seeds are seldom produced by plants in cultivation, propagation of this yucca is primarily by stem cuttings or basal offsets. Many shoots are produced by plants that have been cut back and this provides a quick means of propagation. Stem cuttings placed in sand or coarse soil and kept moist soon strike roots. Since it is an insular and coastal species, **Yucca recurvifolia** requires more frequent watering than do desert species. It is tolerant of full sun and high temperature if provided with sufficient moisture, and will withstand a low temperature down to 0 F. before suffering damage.

This species has been in cultivation since before 1800 and in the trade is often listed under the name **Yucca pendula.** It is a plant having wide application in landscaping the desert garden. It may be utilized in patio containers and raised planters or in the ground as a foundation or specimen plant, either as a single plant or in mass. With broad recurved leaves, it contrasts well with other yuccas of differing habit and with larger succulent plants in general. We highly recommend this species for southwestern gardens.

REFERENCES:

Bailey L. H. — The Standard Cyclopedia of Horticulture.

Trelease W. — The Yuccae, Rpt. Mo. Bot. Gard. 1902.

MEMBER'S GARDEN—II

In the first of this series we showed a desert garden built on a former air strip. This one is built on a rockpile. Charles Mieg, Garden Member, companion on collecting trips, "Chief Cactomaniac" and genuine cactophile, built his house on the side of Mummy Mountain near Scottsdale. The mountain isn't quite solid rock — there are a few pockets of soil here and there. The pictures here and on the next page give readers just a sample of the tremendous variety of desert plants on Charlie's rockpile.

Stone paths and rising steps wind amongst the endless "hard to find and grow" cacti specimens. Many are growing under the shade of Palo Verde trees adjacent to the swimming pool at the left. This garden is a fine example of natural landscaping.

CACTUS & SUCCULENT SOCIETY CONVENTION

The Twelfth Biennial Convention of the Cactus and Succulent Society of America was held May 15th through the 17th at Albuquerque, New Mexico, with the second largest attendance on record, under the able direction of Mrs. Hazel Hicks, president of the New Mexico Cactus and Succulent Society and her hard working committee of Mrs. Ann Sherman, Mr. and Mrs. Ed Nadolny, William Lockwood, Walter Fader and many others from New Mexico.

National officers E. S. Taylor, Chairman, Don Skinner, President; Ed Gay, Vice President; Virginia Martin, Secretary; Joyce Tate, Registrar, and Betty Gay, Convention Treasurer, had been very busy since the Phoenix convention in 1965 to contribute to this highly successful meeting.

Sandi and Hector Moir, Koloa, Hawaii, coming to Albuquerque from farthest away, showed numerous slides of Hawaii and their much visited garden, and due to their fine personalities were crowned King and Queen and will reign until the 1969 convention which will be held in Los Angeles.

Dr. Edward F. Castetter, Professor Emeritus, Biology, University of New Mexico, gave an informative lecture with slides of "Some Interesting New Mexico Cacti." It was too bad that additional educational lectures or papers were not given, as there is abundant talent at the University of New Mexico and other schools in New Mexico.

Three buses took the conventioneers through ghost towns in the Sandia Mountains on the way to the colorful and historical city of Santa Fe. On returning, stops were made at interesting Santo Domingo Pueblo and Coronado.

Many visitors on their way to or returning from the convention spent many hours at our Garden and were quite impressed with our large collection of desert plants and our landscaping of the various beds.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI Aug.-Sept. 1967 No. 7

D.B.G. photo

A pistil of bright metallic green distinguishes *Yucca whipplei.* (P. 78)

REG MANNING

SAGUAROLAND BULLETIN

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W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXI | Aug.-Sept., 1967 | No. 7

Arizona Cactus and Native Flora Society

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Desert Botanical Garden of Arizona

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Secretary.....Marian R. Burgess
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Student Horticulturist.....Lyle McGill
Student Horticulturist.....Stanley C. Scott

Editor's Notes

The new LIBRARY plans have been completed by Les Mahoney and sealed bids will be opened in his office, 2 P.M., August 29th. Plans of the exterior and interior are shown on Page 76.

The Garden is continually acquiring new books and the present problem is to find space to shelve them. We are at present squeezing out exhibits, but this will change by November as the library should be completed by then.

Construction of CARPORTS has been in progress during July and August by the Staff at a considerable saving to the Garden. A four-car carport and seed-washing room adjacent to the warehouse was c o m p l e t e d in early August. These carports have been needed for years and their costs will in no manner deplete building funds for the Library.

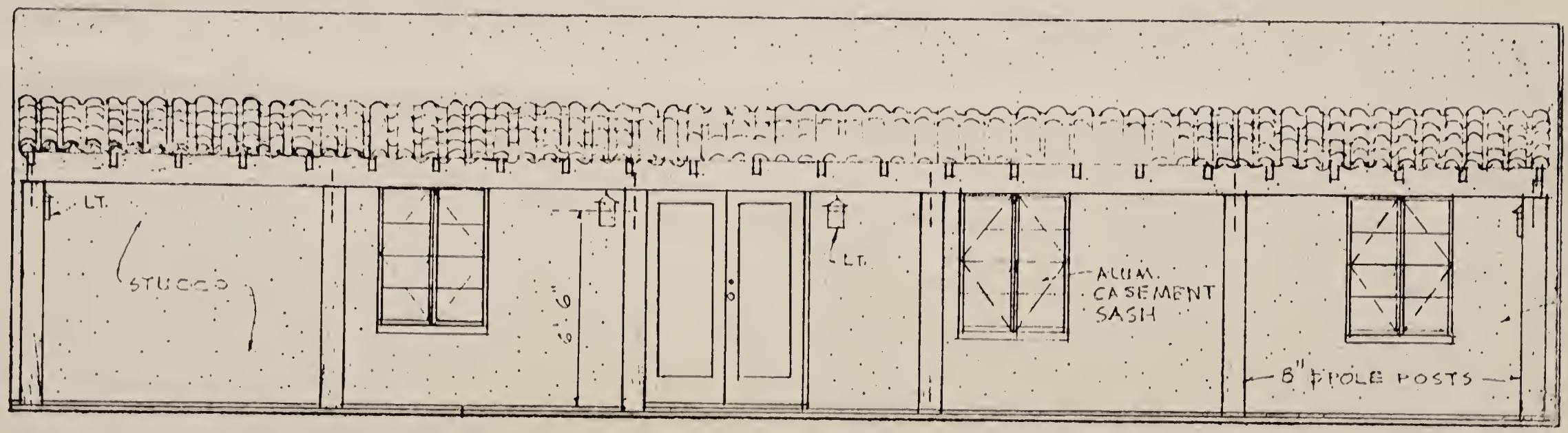
The Cactus and Succulent Society's annual CACTUS SHOW held at the Los Angeles County Arboretum, July 1-4 was another success. Your editor was one of the nine judges. There were excellent Cactus Club affiliate exhibits and outstanding non-competitive exhibits. All the committee put in long hours which produced a well-staged and educational show.

SUMMER ATTENDANCE has been the highest since 1960 when the Garden began to remain open during the summer months. July and August attendance was 30 percent over last year's identical months. Many busses and visitors have kept us quite busy along with a few of the following V.I.P.'s; Dr. Norio Kondo, Director of The Institute for Breeding Research, Tokyo University of Agriculture; Toshihiko Hagiwara, Botanist, The Institute for Breeding Research, Tokyo University of Agriculture; Kenzo Fujihara, Horticulturalist, Head of Technical Department, Kyoto Botanical Garden; N. Sakazaki, Curator Yatsu Botanical Garden, Chiba Prefect, Japan.

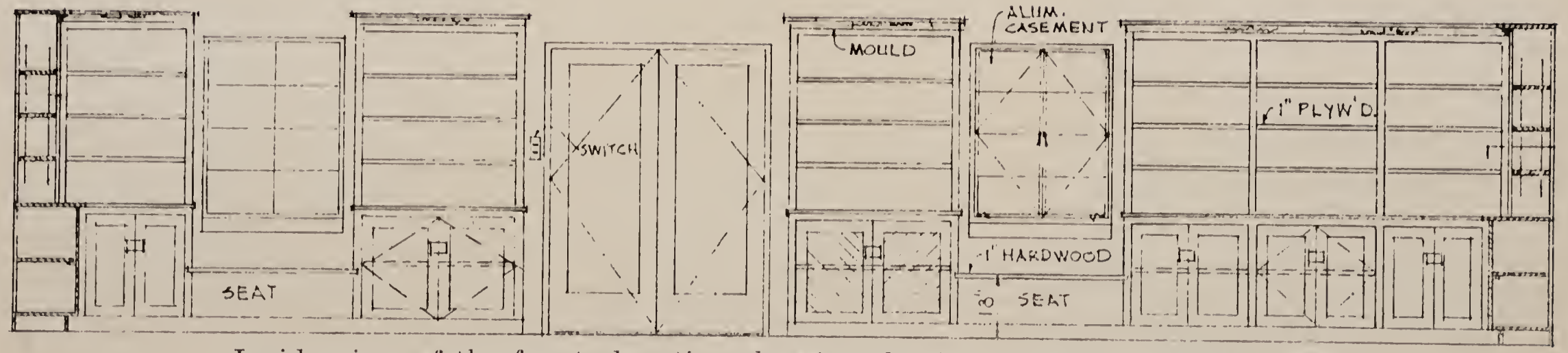
Your Director has been invited to attend the Botanical Gardens & Arboretums CONVENTION, September 17-20, at Hamilton, Ont. After working daily through out the hot summer months, he and Mrs. Earle will attend the convention; visit the Expo 67; visit Botanical Gardens in New York, Washington, Virginia, Tenn., Dallas, and be back early in October. Looks like a postman's holiday?

Recent PUBLICITY for the Garden has been a three-page spread in HORTICULTURE MAGAZINE; mentioned with Scottsdale, Arizona in "Ten of America's Most Unusual Cities" in HOME & GARDEN MAGAZINE; combined with photos in two issues of ARIZONA, Republic Sunday supplement; listed in KEY MAGAZINE of Phoenix, and shown on several T.V. summer reruns.

LIBRARY PLANS



Front elevation of the new proposed Library showing entrance and porch roofed with Spanish tile.



Inside view of the front elevation showing the fine cabinet bookcases. The opposite wall will be filled its entire length with similar cabinets and cases.

A fascinating plant for the collector and grower of unusual plants is **Thelocactus longispinus.** Very little was known about its location or habitat. But your editor, while on the 1966 Mexican trip in company with Hans Krainz, Switzerland, and Charles Meig, Scottsdale, stumbled upon it in the vicinity of Huisache S.L.P.

This plant has been listed in the catalogues of F. Schmoll, exporter of Mexican cacti, San Luis Potosi, since about 1935, as "nomen nudum" but was never described. In his catalogue of April, 1947, he added the following varieties: **pectinatus, querertaroensis, rectispinus, recurvatus,** — all as "n. nuda."

In Sept. 1947, the Garden received from F. Schmoll a large shipment of plants, one of the plants being labeled as **Thelocactus longispinus.** Our collected plant is similar except for having longer spines. It flowered with a small yellow blossom one inch wide but did not set a fruit.

With additional collecting, research and observations, this "listed name" might become a valid species.

REFERENCES: C. & S. J. XI:6, 86, 1939
Die Cactaceae — Backeberg, page 2821

A Beautiful Yucca, Y. whipplei

In the garden of Mr. C. A. Norgren (see the May, 1967 BULLETIN) we have photographed an unusually handsome yucca, seldom seen in Arizona gardens, and even more seldom seen in such beauty. This Yucca is a California native, found on the coastal side of the mountains in the west of the state from the Mexican border northward to Monterey. It is one of only two yuccas that die after flowering, as agaves do. (The s econd is **Y. peninsularis**.) It propagates by rooting stolons or the germination of seed.

The pictures on this page and on the cover were taken in May, when the plant

reached its full height of seventeen feet. It is an especially large flowering stalk for this plant growing in our Arizona desert.

Y. whipplei has a variety of attractive features; the rather "weeping" habit of the infloresence is more graceful than most other yuccas, the individual flower is a creamy waxy white with a most striking metallic green pistil, and one of its common names is "Quixote Plant"—an intriguing name whose origin we haven't yet discovered. Just why this particular yucca bears the name of the famous Don who tilted at windmills isn't immediately apparent.

ASPECTS OF THE DESERT

The California Desert was once an inland sea, and the Desert Fan Palm *(Washingtonia filifera)* is a remnant of the ancient seaside vegetation, growing on or above the beach-line of the vanished sea. In Arizona's southeastern Kofa Mountains, about 65 of these thirty-foot palms grow in a steep canyon, the one remaining stand in the state.

ANISACANTHUS THURBERI (Torr.) Gray Fam. ACANTHACEAE
DESERT HONEYSUCKLE

Anisacanthus thurberi is an upright branching shrub attaining a height of two meters under optimum conditions. The main branches are stout with gray or white exfoliating bark. Leaves are lanceolate or ovate-lanceolate measuring 4 to 6 cm. in length and to 1.5 cm. in width, with short petioles. The smaller leaves are often fascicled in the axils. Flowering takes place primarily in the spring, but can occur throughout the year. A red to orange corolla is from 2 to 4 cm. in length with a long slender tube and strongly bilabiate limb. It is tubular-funnelform with a three-parted lower lip and lobes shorter than the tube. Stamens number only two and the stigma is minute. Fruit consists of a glabrous, flattened, long-stalked capsule measuring 12 to 18 mm. in length and to 6 mm. in diameter. There are two flat discoid seeds, 5 mm. in diameter, in each cell.

Desert Honeysuckle ranges in distribution from southwestern New Mexico into north central and southern Arizona and south into Chihuahua and Sonora, Mexico. In Arizona it extends from southern Apache county west to Yavapai then south into Maricopa, Cochise, Santa Cruz, Pima, and Yuma counties. Elevational range is from 750 to 1650 meters (2500 to 5500 ft.) in the desert, desert grassland, chaparral, and oak-brush type of habitats. It is common, but in scattered stands on rocky or sandy soils along canyons and washes and on sandy plains and foothill slopes.

Anisacanthus thurberi is easily grown from seed or by making woody stem cuttings. Transplants can also be made by dividing large clumps and cutting back the top growth. This species does well in a full-sun or partial-shade exposure when grown on well-drained soils and given supplemental water during extended dry periods. It is capable, however, of withstanding considerable drought, becoming defoliated and near dormant.

Orange-red flowers attract hummingbirds. Bush is shown on next page.

The so-called Desert Honeysuckle (not a true Honeysuckle) does not have a particularly handsome vegetative form, but it is redeemed by the profusion of bright flowers it produces over a long period. It also functions as a strong attractant to nectar-feeding birds and can be planted with Chuparosa (**Beloprone californica**) and Tree Tobacco (**Nicotiana glauca**) to entice these to the desert garden

Many plants sold under this name in southwestern nurseries are misnamed, but the true species may be found in some of the nurseries specializing in desert trees and shrubs.

REFERENCES:

Benson and Darrow—TREES AND SHRUBS OF THE SOUTHWESTERN DESERTS.

Dayton, William A.—IMPORTANT WESTERN BROWSE PLANTS.

Kearney and Peebles—ARIZONA FLORA.

Shreve and Wiggins—VEGETATION AND FLORA OF THE SONORAN DESERT.

From A Cactomaniac's Diary

(subtitled "Notes which interest no one" by their author, C. Meig)

An attempt to root *Beaucarnea gracilis* cuttings failed.

* * *

Cuttings taken above Guanajuato, Mexico, of a very long-spined species of *Myrtillocactus geometrizans* last year are growing but the new spines are only a a quarter inch long as against 3 inches for the old spines.

* * *

Transplanted *Opuntia mammillata* from Sonora when grown under better conditions becomes *Opuntia cholla.* Seems the two "species" are the same plant growing under different conditions.

* * *

Of 600 *Idria columnaris* seeds, 240 germinated and now after 10 months there are only 7 still alive. The rest damped off. It has been found that seed over 2 years old of *Idria* is not viable anymore.

* * *

Seeds of *Yucca rigida* from Coahuila is still germinating after being kept for over 10 years.

CORYNOPUNTIA CLAVATA — CACTACEAE

Dagger Cholla

This is quite an inconspicuous, low, matted plant forming clumps up to seven feet in dameter, although the stems are only two to three inches tall. It grows along both sides of the Rio Grande in central New Mexico, and is also common around and east of the Sandia Mountains east of Albuquerque.

The short, green clavate (club-shaped) stems are quite turgid despite low normal rainfall, and give an outward appearance of being dead, but respond quickly to the infrequent rains.

The stems are covered with short inch-long dagger-shapped spines, grey-white in color. New spines are red, but later change to grey. Innumerable short glochids give additional protection to the stems.

Fruit is an inch and a quarter long, with numerous areoles filled with yellow, radiating glochids. The seeds are white and comparatively large, being three-sixteenths of an inch broad.

This plant has no commercial use, and is a hindrance and pest to grazing animals. Plants along the highways catch and hold litter thrown from cars by careless motorists.

This is a poor plant for horticultural use, as the reader has by now deduced, yet it has, for its size, very large yellow flowers.

Corynopuntia parishii is a close relative of **C. clavata** and grows in the deserts of California, Nevada, and western Arizona.

Type location: Albuquerque, New Mexico.

Distribution: Central New Mexico.

References:

Backeberg, C., DIE CACTACEAE
Britton & Rose, THE CACTACEAE
Earle, W. H., CACTI OF THE SOUTH-WEST

C. clavata, nearly life-sized here, shows its strong "dagger" spines and its proportionately large yellow flower.

MEMBER'S GARDEN—III

How do you combine a passion for cactus life in a mobile home park? Since every dedicated gardener longs for more space, we want to show how the Jinnemans of Mesa, Arizona, coped. First, they acquired a double lot a year ago, but even a 60x80 lot that must hold a mobile home and a carport takes skill in landscaping if you have the big collection of plants that Bert and Lucille Jinneman have. The cactus, even the 8-ft. **Cereus peruvianus** which Bert grew from seed, were moved from their previous home, and beautifully arranged in rock-edged raised beds to show off the plants and give a deceptive feeling of space. Every bit of shade is utilized, as in the "step table" holding the rarer and more tender cacti and succulents which Bert enters most successfully in competitions such as our annual Cactus Show. (More photos on the following page.)

GARDEN ACTIVITIES

Tues., Sept. 19th ARIZONA ORCHID SOCIETY Meeting **8:00 P.M.**

Reminder: Keep your Wednesday afternoons free this fall and come to the Classes at the Garden. First class meeting is Nov. 1, but you can mark your date book now.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI October, 1967 No. 8

DBG photo

Salmon-colored flowers of *Hesperaloe parviflora*. See page 95.

REG MANNING

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Editor's Notes

Enclosed with this issue is our 1967-68 LIST OF GARDEN ACTIVITIES. Keep it handy for reference. Please note that we have added a Wednesday evening class in "A Better Understanding and Use of Desert Plants." Registration for the classes in $5.00. Members of the Garden may enroll at no charge.

Another innovation this year — NATURE HIKES have been arranged monthly for the Cactomaniacs and other Garden members.

A series of eight new ILLUSTRATED LECTURES will be given Sunday afternoons at 3 P.M. and repeated later on Thursday at 3 P.M.

The Arizona Orchid Society will meet at the Garden at 8 P.M. on the third Tuesday of each month.

CACTOMANIACS will continue to meet on the first Tuesday of the month at 8 P.M. The October meeting on October 3rd, however, will be a pot-luck supper and will start at 6:30 P.M.

* * *

The LIBRARY bids were opened August 29th, and the Dean W. Coffman Construction Co., of Scottsdale, was low bidder. Construction started in early September. Walls are now going up and the building is to be completed by the middle of December. We will welcome the New Year with a spacious library for our many books at hand and for collections being willed to the Garden.

This has been a CONSTRUCTION YEAR. The staff constructed a 4-car car port and seed room (shown on page 90); double carport and storage rooms at the Archer House; installed 860 ft. of one-inch and three-quarter-inch water pipe; painted all the rooms in the Administration Building apartment; replaced inefficient French doors with steel casement windows and brick; bricked in and insulated the apartment's "sleeping porch," thus making it a usable room.

* * *

A living OCOTILLO FENCE was erected by the staff four years ago as a demonstration of the use of this plant. The fence has grown, flowered each year, and serves as an ideal buffer to keep our visitors from "straying" into a forbidden area. This spring we acquired a "timber cutting" permit to remove additional ocotillo "canes" from an area that was to be used as a gravel pit. Three hundred ocotillo cuttings were used to increase the present fence another fifty lineal feet. Stop at the Garden and we will be glad to explain the planting of these living fences.

NATURE WALK BULLETIN —

—Nineteen Editions, 179,000 Copies!

Fresh from the printer and ready for the increasing Garden attendance this Fall, is the Nineteenth Edition of our **Self - Conducted Nature Walk** bulletin, 20,000 copies of it to start with.

New illustrations and revised information, printed on sixteen pages of glossy paper, make a contrast to the original **Nature Walk** bulletin of 1948 and 1949 which consisted of three mimeographed pages and had an edition of 2500 copies a year.

Today's **Nature Walk** bulletin begins with an introduction to our desert, and proceeds to describe the numbered plants or groups of plants along the winding, paved paths of the Garden and in the two lath houses. Descriptions do more than identify the plants. They include facts on the native home of plants, uses of plants both as food and medicine, and they expose some of the false "facts that everybody knows" —a Century Plant doesn't live for 100 years, Barrel Cactus doesn't store good drinking water.

A number of article writers have used the **Nature Walk** bulletin and quoted from it, word for word, in published material.

The growth of the Garden in many ways can be traced through the growth of our **Nature Walk** bulletin. After the original mimeographed three - pager came an eight-page edition which sold 5,000 copies a year. In 1952 we went to the present sixteen-page size and to an annual print order of 7,500. Subsequent editions, revised as the Garden expanded, necessitated larger orders from the printer: 10,000 a year, then 12,000, and since 1959 a minimum order of 20,000 copies. We won't be surprised if the 20,000 copies of the Nineteenth Edition (this brings our grand total to 170,000) will be sold before the year is up.

OPUNTIA BASILARIS var. AUREA — CACTACEAE

CREEPING BEAVER-TAIL PRICKLY PEAR

Opuntia basilaris var. **aurea** is a variety of **O. basilaris** with several distinct differences from the latter. It is a low, prostrate plant, the joints branching on their edges, rooting on contact with soil and forming long chains of stems two to six feet long. The joints (or pads) are circular or oval, three to five inches in diameter, and light grey-green in color. There are many areoles with fine hair and golden-brown glochids. The plant is spineless except for occasional short spines on the upper edge.

Flowers of this variety are yellow (hence **aurea**) or pink to red, are two and a half inches wide and have many petals. Fruit is dry, narrow, one and a quarter inches long, with light yellow glochids. Seeds are circular, light buff, and pitted.

E. M. Baxter described "**Opuntia aurea**" as a new species in 1933, feeling that it differed from the Basilaris Series of **Opuntia** in distribution "very much out of the way of other members of the Basilaris Series," and growth of chain-like joints which resemble the growth of **O. pycantha** more than that of **O. basilaris.** W. T. Marshall, however, in 1950, considered it merely a variety of **O. basilaris,** and this opinion is held today by Backeberg and others.

TYPE LOCALITY: Piute Indian Reservation, north of Pipe Springs, Ariz.

DISTRIBUTION: Northern Ariz., southern Utah, eastern Calif.

REFERENCES:

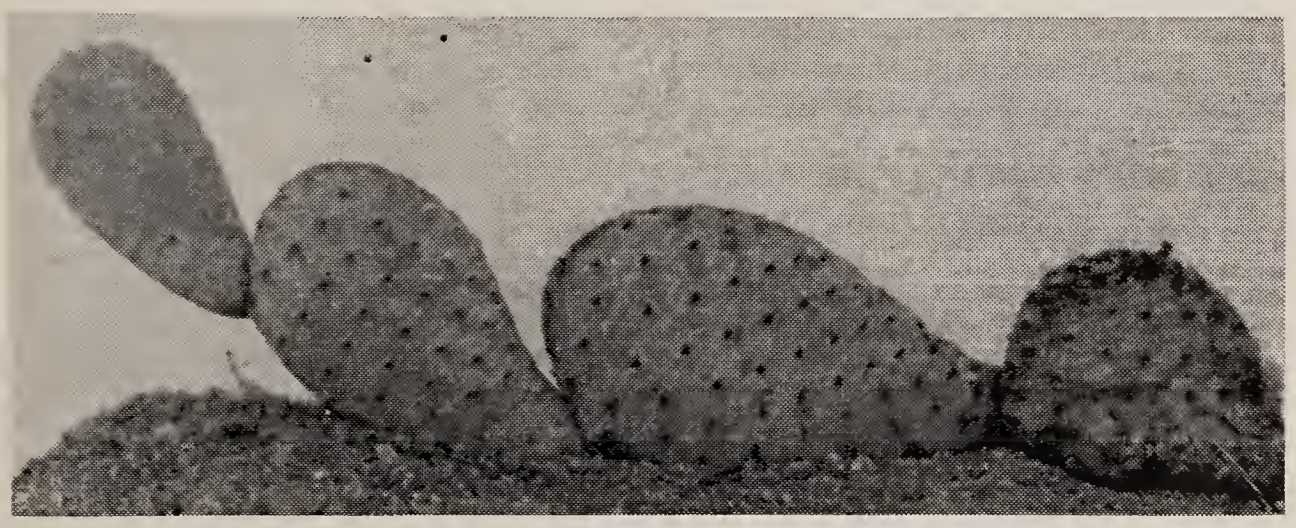
Backeberg, DIE CACTACEAE

Baxter, Journ. Cac. Succ. Soc. V, No. 6, 1933

Baxter, CALIFORNIA CACTUS

Earle, CACTI OF THE SOUTHWEST

Marshall, ARIZONA'S CACTUSES



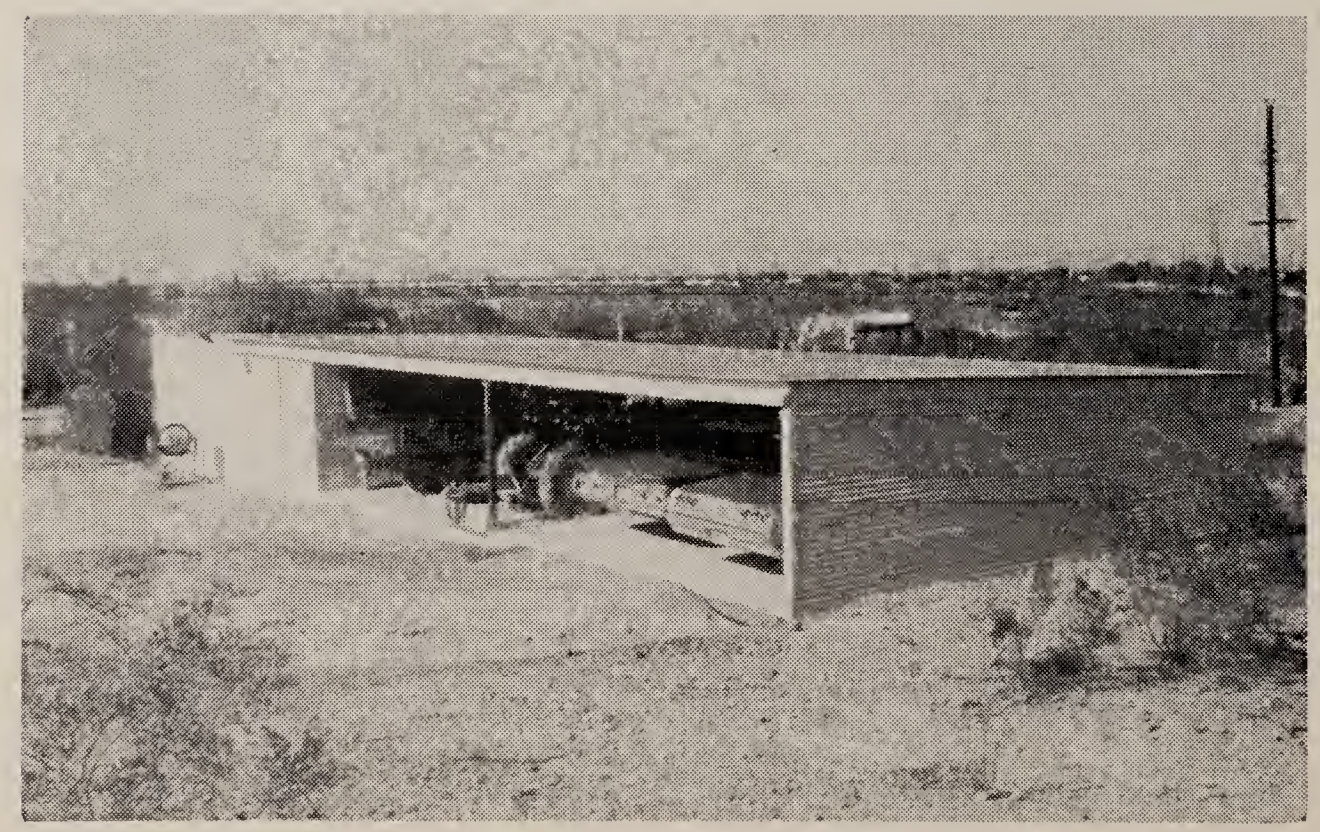
DBG photo

The odd growth-habit of *O. basilaris* var. *aurea*. Habitat photo will be found on page 96.

In reference to **Yucca recurvifolia** (June-July 1967 SAGUAROLAND BULLETIN), Mrs. Mary Bellerue of Twenty-Nine Palms, California, has informed us that plants in her garden produce seed regularly. She attributes this to two possible reasons: one, that the moth pollinator of **Y. schidigera** also pollinates **Y. recurvifolia,** and, two, the presence of more than one clone. This is of interest, since, to our knowledge, none of the plants under cultivation in Central Arizona produces seed, although the moth pollinators of **Y. baccata** and **Y. elata** are present.

CARPORT REPORT

Our "rolling stock," the tractor, truck, etc., needed shelter, and so a 25x40-ft. carport was added to the south side of our warehouse and workshop during July and August. The concrete and metal building contains two storage rooms, much needed, and construction included a 210-sq-ft., seed-washing area, sheltered and "plumbed" and equipped for the tedious and often messy job of washing seed of desert plants, mostly cacti. Pictures here are "before and after." Now no more dust-drowned truck or sun-baked tractor. Ouch!



ASPECTS OF THE DESERT

Deposits of loose sand, kept moving by desert winds, defeat attempts of plants to grow, and sand dunes such as these near Yuma, Arizona, always stay bare. They are not widespread or typical of all deserts.

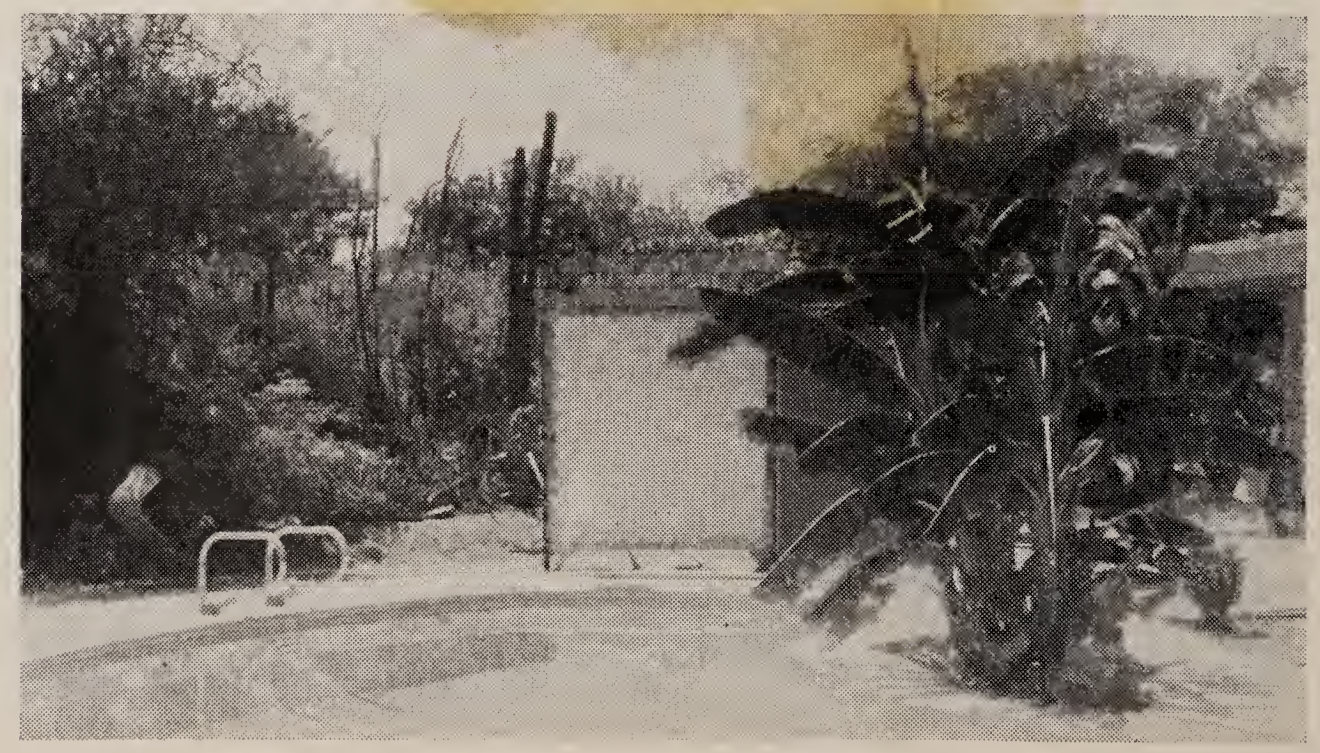
MEMBER'S GARDEN — IV

Garden Member Brooks Darlington would have, except for the basically excellent design of his desert garden in Scottsdale, a "cactus jungle" today twelve years after he began planting in bare desert soil. He is now thinning out his exuberant plants which have responded beyond expectations to a combination of location (the northeast slope of Camelback Mountain), good soil, and lots of water. The location permits the successful growing of Joshua Trees.

Among the attractive features of the Darlington garden is the careful use of large boulders to define areas and set off plants. Cactus is effectively used near — but not too near — the pool.

The large saguaro, full of blooms in the photo, was the only existing plant when the garden was started. All others, including trees, have been planted in the last twelve years. Beds are not flat, but imitate the natural habitat of desert plants, as, for example, the mound on which is planted a clump of barrel cactus.

Mr. Darlington admits that he overplanted his garden at the beginning, but what gardener can count on such enthusiastic cooperation from his plants?



Thelocactus bicolor var. tricolor Schumann CACTACEAE

NIPPLE CACTUS

Thelocactus bicolor is a miniature "barrel" cactus, well-known for its easy culture and prolific blooming. It withstands cold down to about zero, and will bloom every month in the warm southwest U.S.A. and northern Mexico.

Thelocactus bicolor var. **tricolor** was described by Dr. Karl Schumann as **Echinocactus bicolor** var. **tricolor** in 1898. It is a plant with many appressed spines, not often found in collections, yet it adapts itself to new climates readily. It will grow up to ten inches high with a conical apex. Its flowers are lighter in color than **T. bicolor** and bloom in the spring.

It is found growing in colonies in Mexico from Durango (southwest section) to Zacatecas (east) and San Luis Potosi (central). Habitat photo below was taken at Parras de la Fuente, Coahuila.

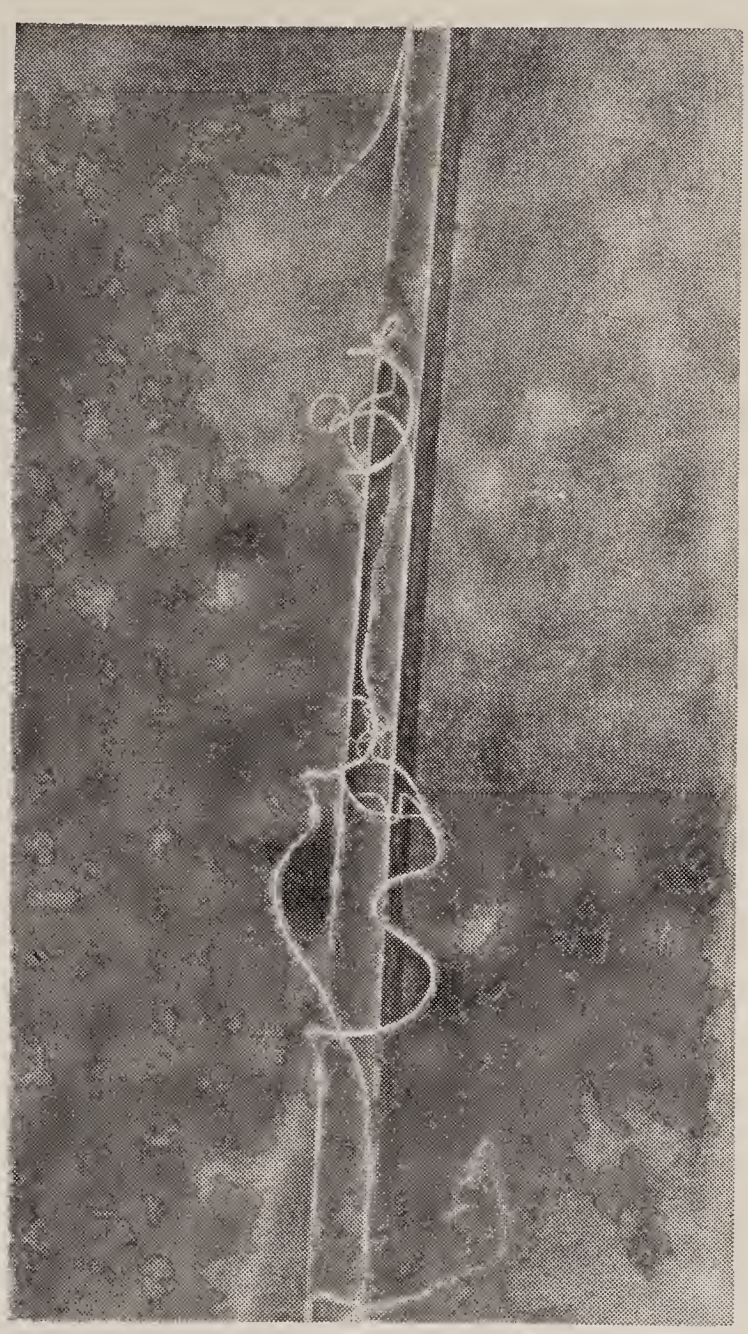
REFERENCES:

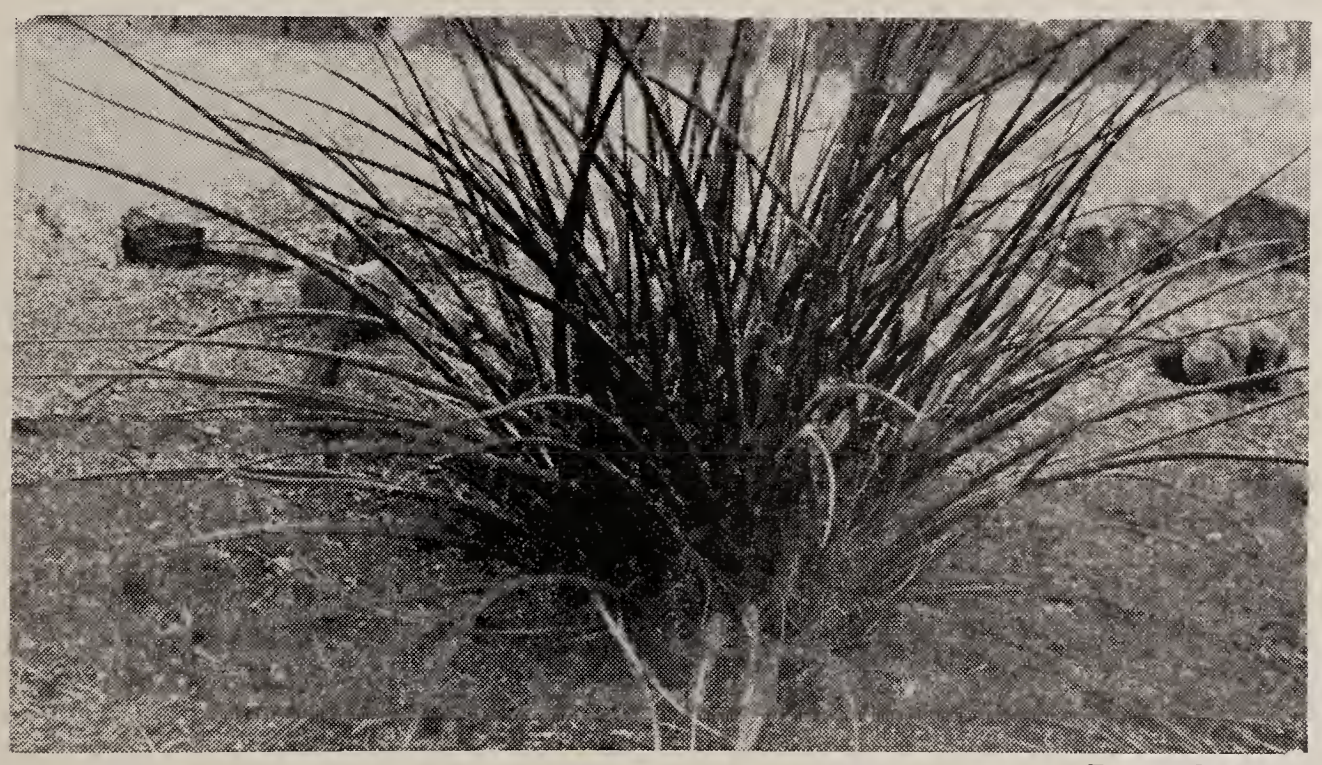
Backeberg, C. — DIE CACTACEAE
Bravo H., Helia — LAS CACTACEAS DE MEXICO
Schumann, K. — KAKTEEN

HESPERALOE PARVIFLORA (Torrey) Coulter Fam. LILIACEAE

Hesperaloe parviflora is one of two or three species of this genus. It is acaulescent to subcaulescent and caespitose in habit, in time becoming a large suckering clump. The long linear leaves are arcuate, spread measuring from one to 1.25 meters in length and to 2.5 cm. in width. These are tough and leathery, striate ridged beneath, and grooved above with filiferous margins. The tip is usually dried and rigid, but not pungent. A single or few-branched inflorescence making up a loose panicle rises to 1.25 meters in height, with flowers fascicled above the bracts.

Flowers are tubular, varying in color from pinkish-red to salmon externally with creamy inner surfaces. An individual flower may reach 35 mm. in length and has distinct perianth segments that are closely appressed. The filiform style is long-exserted being two or more times as long as the ovary and the stigma is only slightly enlarged. Anthers are oblong, borne on erect, slender filaments which are attached to the base of the perianth. The ovate to globose capsules are three celled and 25 mm. or more in length, containing black seeds which are





DBG photos

(Top right) Close-up of the threads edging a *H. parviflora* leaf.
(Above) The long arching leaves of this handsome plant.

thin and flat and five to eight mm. in size.

The so-named "western aloe," not a true aloe, has a limited distribution in southwestern Texas, being reported from the southern part of Valverde County in the Edwards Plateau plant area, then extending southeast into Kinney County and the western part of Zavalla County in the Rio Grande Plains. The range probably extends into the Mexican state of Coahuila, but we have no reports of it there.

This species of **Hesperaloe** has been used in landscaping and for ornamental uses since before 1900, yet it is infrequently encountered in desert gardens. In plant form it more nearly resembles some of the nolinas than it does most yuccas. It is used primarily for its desirable flowering habit that extends over a two or three month period. The elongated arching inflorescence seems to always have a few delicate shaded flowers open to view. While it can be used for foundation planting or in conjunction with other plants, it is best displayed at a point or in a small bed by itself. Being unarmed, it can also be placed in large tubs or containers for porch or patio decoration.

Growth rate of **Hesperaloe** is relatively slow and propagation is by means of seed or the taking of offsets from a parent plant. It makes good growth on either full sun or partial shade sites, particularly in well-drained soils. Supplemental water is needed during extended dry periods.

REFERENCES:

Cory and Parks ..... Catalogue of the Flora of Texas.

Coulter ..... Botany of Western Texas.

Standley, P.D. ..... Trees and Shrubs of Mexico.

Trelease, W. ..... The Yucceae.

DBG photo

Habitat of *O. basilaris* var. *aurea.* This photo was taken near Short Creek, Arizona, on the Arizona-Utah border.

GARDEN ACTIVITIES FOR OCTOBER

Sat. 7th NATURE FIELD TRIP 9 A.M.

Public Activities At
Desert Botanical Garden Auditorium - 1967-68
IN PAPAGO PARK, PHOENIX, ARIZONA
(Enter at 5800 E. Van Buren or 6400 E. McDowell Road)

GARDEN is open daily 9 A.M. to 5 P.M. including week-ends and holidays.

ILLUSTRATED LECTURES are given each Thursday and Sunday at 3 P.M. with the use of colored slides for 35 minutes.

CLASSES in "A Better Understanding, Identification, and Use of Desert Plants," are given for one hour each Wednesday afternoon and evening, November through April.

The above lectures and classes are conducted by Director W. H. Earle and Staff, and are given in the Webster Auditorium.

		OCTOBER	
Sat.	**7th**	NATURE TRIP	9 A.M.
		NOVEMBER	
Thurs.	**2nd**	LECTURE—Arizona Cacti	3 P.M.
Sun.	**5th**	LECTURE—Arizona Wildflowers	3 P.M.
Wed.	**8th**	CLASSES—Deserts and their Plants	3 & 8 P.M.
Thurs.	**9th**	LECTURE—Arizona Trees and Shrubs	3 P.M.
Sat.	**11th**	NATURE TRIP	9 A.M.
Sun.	**12th**	LECTURE—Arizona Birds and Animals	3 P.M.
Wed.	**15th**	CLASSES—Desert Succulent Plants	3 & 8 P.M.
Thurs.	**16th**	LECTURE—Arizona Scenics	3 P.M.
Sun.	**19th**	LECTURE—Unusual Plants	3 P.M.
Wed.	**22nd**	CLASSES—Culture of Desert Succulent Plants	3 & 8 P.M.
Thurs.	**23rd**	LECTURE—Cacti in Flower	3 P.M.
Sun.	**26th**	LECTURE—Mexican Cacti	3 P.M.
Wed.	**29th**	CLASSES—Identification of Desert Trees & Shrubs	3 & 8 P.M.
Thurs.	**30th**	LECTURE—Arizona Cacti	3 P.M.
		DECEMBER	
Sun.	**3rd**	LECTURE—Arizona Wildflowers	3 P.M.
Wed.	**6th**	CLASSES—Culture of Desert Trees & Shrubs	3 & 8 P.M.
Thurs.	**7th**	LECTURE—Arizona Trees & Shrubs	3 P.M.
Sat.	**9th**	NATURE TRIP	9 A.M.
Sun.	**10th**	LECTURE—Arizona Birds & Animals	3 P.M.
Wed.	**13th**	DESERT FIELD TRIP for Afternoon Class	9 A.M.
Thurs.	**14th**	LECTURE—Arizona Scenics	3 P.M.
Sat.	**16th**	DESERT FIELD TRIP for Evening Class	9 A.M.
Sun.	**17th**	LECTURE—Unusual Plants	3 P.M.
Thurs.	**21st**	LECTURE—Cacti in Flower	3 P.M.
Sun.	**24th**	LECTURE—Mexican Cacti	3 P.M.
Thurs.	**28th**	LECTURE—Arizona Cacti	3 P.M.
Sun.	**31st**	LECTURE—Arizona Wildflowers	3 P.M.
		JANUARY	
Wed.	**3rd**	CLASSES—Deserts and their Plants	3 & 8 P.M.
Thurs.	**4th**	LECTURE—Arizona Trees & Shrubs	3 P.M.
Sat.	**6th**	NATURE TRIP	9 A.M.
Sun.	**7th**	LECTURE—Arizona Birds & Animals	3 P.M.
Wed.	**10th**	CLASSES—Desert Succulent Plants	3 & 8 P.M.
Thurs.	**11th**	LECTURE—Arizona Scenics	3 P.M.
Sun.	**14th**	LECTURE—Unusual Plants	3 P.M.
Wed.	**17th**	CLASSES—Culture of Desert Succulent Plants	3 & 8 P.M.
Thurs.	**18th**	LECTURE—Cacti in Flower	3 P.M.
Sun.	**21st**	LECTURE—Mexican Cacti	3 P.M.
Wed.	**24th**	CLASSES—Identificaiton of Desert Trees & Shrubs	3 & 8 P.M.
Thurs.	**25th**	LECTURE—Arizona Cacti	3 P.M.
Sun.	**28th**	LECTURE—Arizona Wildflowers	3 P.M.
Wed.	**31st**	CLASSES—Culture of Desert Trees & Shrubs	3 & 8 P.M.

(Over)

10/67

DESERT BOTANICAL GARDEN ACTIVITIES 1968

FEBRUARY

Thurs.	1st	LECTURE—Arizona Trees & Shrubs	3 P.M.
Sat.	3rd	DESERT FIELD TRIP for Evening Class	9 A.M.
Sun.	4th	LECTURE—Arizona Birds & Animals	3 P.M.
Wed.	7th	DESERT FIELD TRIP for Afternoon Class	9 A.M.
Thurs.	8th	LECTURE—Arizona Scenics	3 P.M.
Sat.	10th	NATURE TRIP	9 A.M.
Sun.	11th	LECTURE—Unusual Plants	3 P.M.
Sun.	18th to 25th	21st ANNUAL CACTUS SHOW	9 A.M. to 5 P.M.
Thurs.	29th	LECTURE—Cacti in Flower	3 P.M.

MARCH

Sun.	3rd	LECTURE—Mexican Cacti	3 P.M.
Wed.	6th	CLASSES—Deserts and their Plants	3 & 8 P.M.
Thurs.	7th	LECTURE—Arizona Cacti	3 P.M.
Sat.	9th	NATURE TRIP	9 A.M.
Sun.	10th	LECTURE—Arizona Wildflowers	3 P.M.
Wed.	13th	CLASSES—Desert Succulent Plants	3 & 8 P.M.
Thurs.	14th	LECTURE—Arizona Trees & Shrubs	3 P.M.
Sun.	17th	LECTURE—Arizona Birds & Animals	3 P.M.
Wed.	20th	CLASSES—Culture of Desert Succulent Plants	3 & 8 P.M.
Thurs.	21st	LECTURE—Arizona Scenics	3 P.M.
Sun.	24th	LECTURE—Unusual Plants	3 P.M.
Wed.	27th	CLASSES—Identification of Desert Trees & Shrub	3 & 8 P.M.
Thurs.	28th	LECTURE—Cacti in Flower	3 P.M.
Sun.	31st	LECTURE—Mexican Cacti	3 P.M.

APRIL

Wed.	3rd	CLASSES—Culture of Desert Trees & Shrubs	3 & 8 P.M.
Thurs.	4th	LECTURE—Arizona Cacti	3 P.M.
Sat.	6th	NATURE TRIP	9 A.M.
Sun.	7th	LECTURE—Arizona Wildflowers	3 P.M.
Wed.	10th	DESERT FIELD TRIP for Afternoon Class	9 A.M.
Thurs.	11th	LECTURE—Arizona Trees & Shrubs	3 P.M.
Sat.	13th	DESERT FIELD TRIP for Evening Class	9 A.M.
Sun.	14th	LECTURE—Arizona Birds & Animals	3 P.M.
Thurs.	18th	LECTURE—Arizona Scenics	3 P.M.
Sun.	21st	LECTURE—Unusual Plants	3 P.M.
Thurs.	25th	LECTURE—Cacti in Flower	3 P.M.
Sun.	28th	LECTURE—Mexican Cacti	3 P.M.

MAY

Sat.	11th	NATURE TRIP	9 A.M.

No Lectures or Classes given May through October. The Garden is open daily 9 A.M. to 5 P.M., including week-ends and holidays.

CACTOMANIACS meet at 8 P.M. the first Tuesday of the month, October through May. The ARIZONA ORCHID SOCIETY meets at the Garden at 8 P.M. on every third Tuesday of the month, September through May. All interested persons are welcome to attend Cactomaniacs or Orchid Society meetings.

The DESERT BOTANICAL GARDEN is a non-profit educational institution, and is supported solely by memberships, endowments and contributions. MEMBERSHIP applications are available for you at the Book and Gift Shop in the VISITORS' RECEPTION BUILDING.

For additional information, telephone 947-2800.

(Over)

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI November, 1967 No. 9

Devil Cholla — *Corynopuntia stanlyi* in fruit. See p. 102.

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsore of the Desert Botanical Garden of Arizona, P. O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXI | November, 1967 | No. 9

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GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

Editor's Notes

PROGRESS on the new Library building is coming along better than expected. Architect Les Mahoney and Contractor Dean Coffman, both members of the Garden, are pushing for an early completion of the building. Photo on page 101 shows the roof being installed.

The library will need additional tables, chairs, display cases, desk and typewriter. Members wishing to contribute to these items may call or write the office for the different costs that are tax deductible for either 1967 or 1968.

Dedication of the library may be held in December or the week of the Cactus Show in February.

Stop in at the Garden to see the many projects made by the Staff this past summer and fall.

ANNUAL MEETING of the American Association of Botanical Gardens and Arboreta was held Sept. 17-20th at the Royal Botanical Gardens, Hamilton, Ontario, which your editor and wife, Lois, attended while on vacation. Over one hundred persons were registered from U.S.A. and Canada. Trips were arranged to the many lovely gardens in and around Hamilton and to Niagara Falls. About half of the registrants continued on to Cleveland, Ohio for the American Horticultural Congress which was to convene Sept. 22nd.

We continued east to Toronto and Quebec to visit friends, relatives and many of the botanical gardens of the eastern states. Cactophiles will be interested in knowing that Mr. and Mrs. Scott Haselton have a charming Burlington, Vt., summer retreat amongst the tall birch trees; that Dr. and Mrs. G. Barad, Flemington, N.J., have a tremendous place and he appears to be the best cacti grower in the east; that Lad Cutak is now Public Relations director for the Shaw Botanical Gardens, St. Louis, Mo. and there we were fortunate to see the excellent Annual Fall Cactus Show sponsored by the Henry Shaw Cactus Society; that the new Arid House at Mitchell Park Horticultural Conservatory, Milwaukee, Wis., is to be officially opened Nov. 4th with many cacti and other succulents on display that were shipped by Phoenicians Herb Bool and Whit Evans. This unusual building is in the form of a "bee-hive" — 87 feet high and 140 feet in diameter and constructed of precast concrete sections on which are attached glass and aluminum sections. Ten large fans circulate fresh air thru the building's cone-like apex to dissipate excessive heat or moisture.

We had hoped to visit more of our friends but conflicts cancelled hoped-for visitations. Slides taken on the trip of many botanical gardens will be shown at the November Cactomaniacs meeting.

The ARIZONA PARKS AND RECREATION ASSOCIATION is having its 18th Annual Conference at the Ramada Inn, Phoenix, Nov. 15th - 17th where your editor has been asked to speak Nov. 16th on "Desert trees and shrubs for use in desert landscaping of homes, roadways and arid locations."

ECHINOCEREUS PENTALOPHUS (A Mexican Cactus)

Devil's Finger

From color photo by R. C. Proctor

The striking flower of this hedgehog is a joy to any cactophile.

Echinocereus pentalophus (pen-tal'-o-fus) — with five crests, is a fast-growing plant forming large sprawling clumps 2-3 feet in diameter. Its 3-6 inch stems are at first erect but later become procumbent during the cold winter months in its high plateau habitat. In the spring the stems will arise and show of its gorgeous lilac to pink rotate two-inch-wide flowers during the month of May and then again in mid-summer.

This hedgehog is found through the Mexican states of San Luis Potosi, Tamaulipas, Nuevo Leon and southern Texas below Laredo and Corpus Christi. It prefers a slightly acid soil and usually grows in rocky soil or amongst large boulders or rocks.

Cultivation of this hedgehog is relatively easy but if grown in greenhouses lots of light is needed, otherwise the stems will be thin and lanky. Precautions have to be taken in growing it outdoors in hot low desert country as the hot sun will sunburn and dry out the plants. They should be grown on the shady side of dwellings or walls but preferably under bushes with their broken shade.

Stems of the indoor plants often become quite turgid, up to one inch in diameter, and develop short spines, whereas the outdoor plants will have thin stems with white to yellow to dark grey one-inch-long spines. The stems of outdoor plants will develop ribs arranged spirally on three-quarter-inch stems.

Fruits of these plants do not have many spines and are eaten by bird, beast and man.

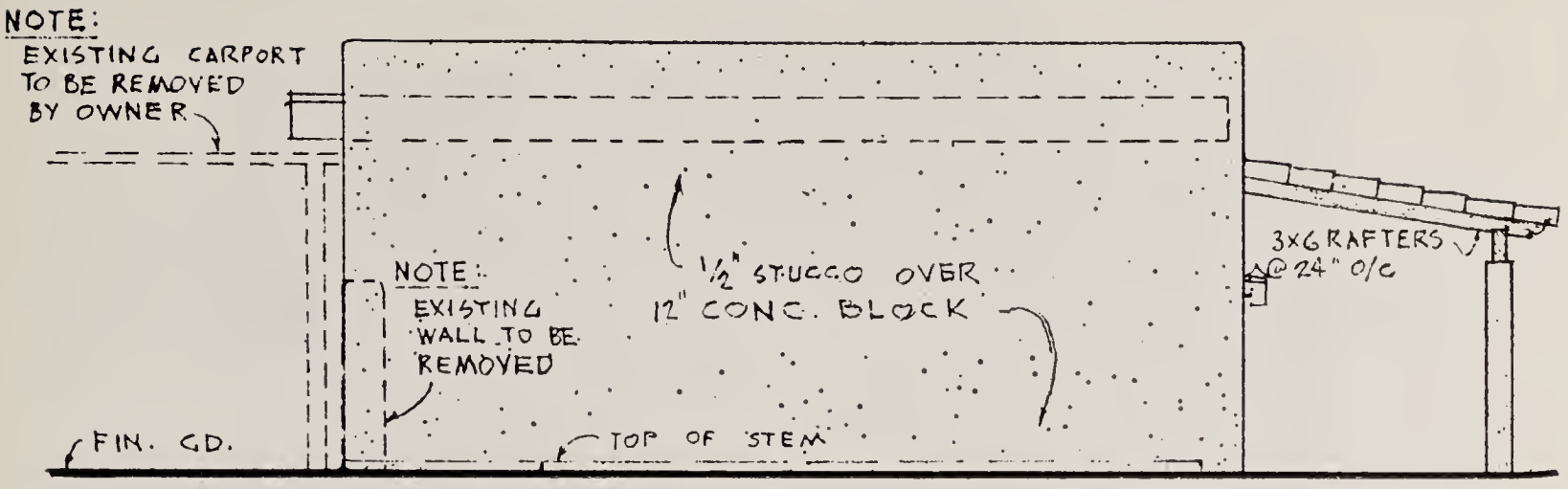
REFERENCES:

Borg, J.—CACTI
Britton and Rose—CACTACEAE
Marshall, W. T.—GLOSSARY OF SUCCULENT PLANT TERMS

DBG Photo

Note the spiralled stems and long spines when growing in the wild. Habitat photo bottom of page 108.

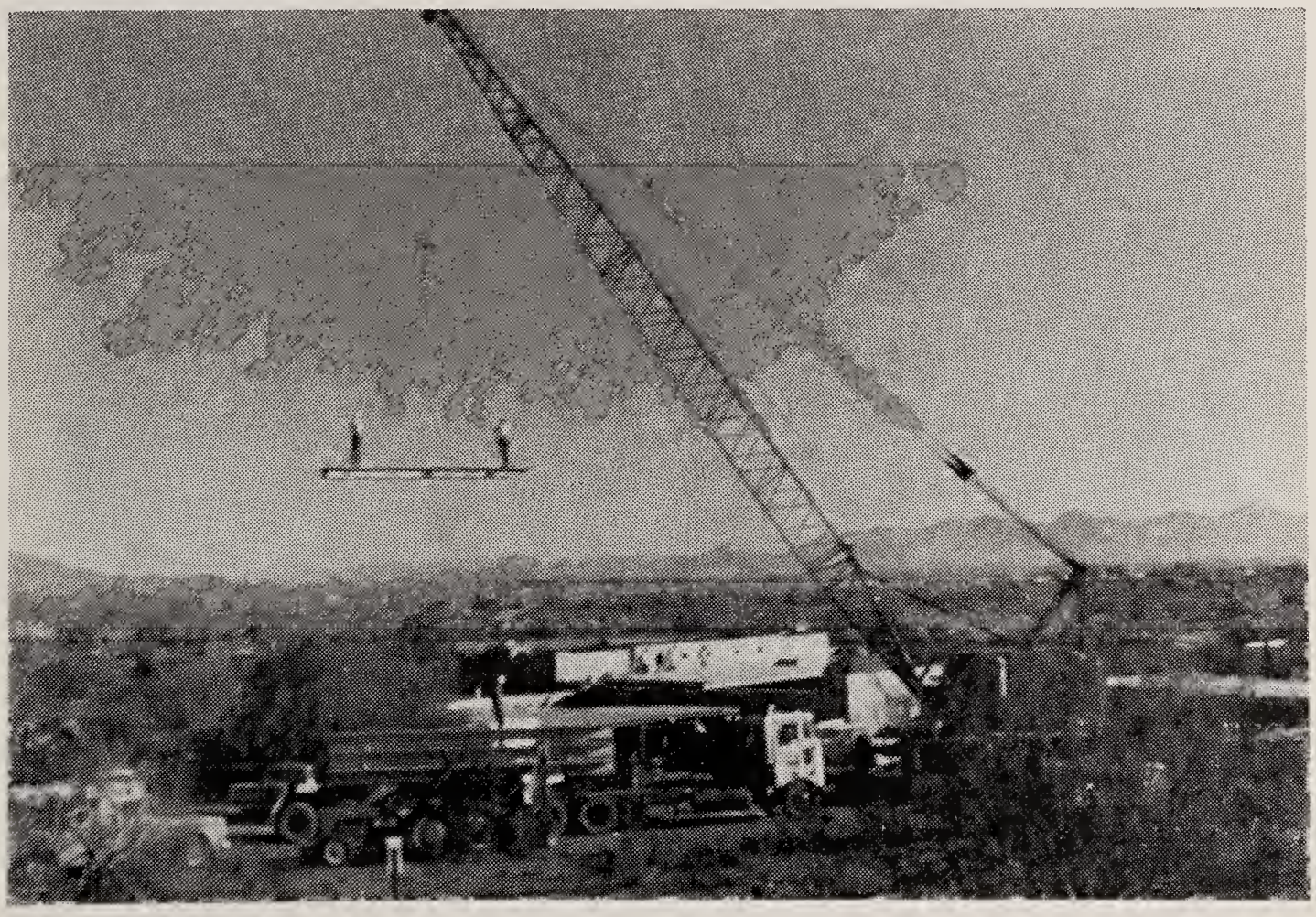
LIBRARY BUILDING PROGRESS



Above is shown the south end of the new Library designed by Les Mahoney, Chairman of our Advisory Board and being built by Dean Coffman Construction Co.

Below can be seen two engineers "air-lifted" on a 26-foot long double "T" concrete roof slab, indicated in the above sketch by dotted horizontal lines, being lifted by a 100′ boom truck of the Arizona Sand and Rock Co. Other slabs can be seen on tractors in the foreground. The roof slabs were installed in about ninety minutes. These concrete roof slabs will further contribute to a fireproof building for the protection of our valuable library.

All concrete block work is now completed, electrical conduits are in place, casement windows installed, porch erected and stuccoing finished. Air ducts for heating and cooling and book cases will possibly be completed this month.



CORYNOPUNTIA STANLYI — CACTACEAE

Stanly's Club Cholla
Devil Cholla

Opuntias, which were once "lumped" in one genus, now are divided into three, the Cylindropuntias (chollas), Platyopuntias (prickly pears) and the Corynopuntias (club-shaped chollas). **Corynopuntia stanlyi** (formerly **Opuntia stanlyi**) is a low growing, mat-forming plant whose stems rarely exceed a foot in height. These much-branched creeping stems form broad, impenetrable mats often 15 to 20 feet in diameter.

On the average, the stems are 4 to 6 inches long, club-shaped, and curved. They are strongly tuberculate, bearing numerous stout spines. The flowers are bright yellow, 2 to 2½ inches across, and appear profusely on the plant in June. The fruit also is yellow, very spiny, and 2 to 2½ inches long.

In Arizona **C. stanlyi** grows in Greenlee, Graham, Gila and Pinal Counties, the eastern part of the state, at elevations of 2000-5000 ft. It is found on sandy mesas and rocky hillsides.

The Devil's Cholla is a poor plant horticulturally for several reasons: it is not an attractive plant, it is inconspicous, has a habit of holding all papers and trash that blow into the plant and is very spiny. Its only favorable feature is to hold soil on slopes or wind blown areas.

TYPE LOCALITY — Del Norte and Gila Rivers, New Mexico.

DISTRIBUTION — Southwestern New Mexico, eastern Arizona, and Mexico.

REFERENCES:

Benson, L., Cacti of Arizona
Britton and Rose, The Cactaceae
Earle, W. H., Cacti of the Southwest

Corynopuntia stanlyi will develop stems up to ten inches tall when in cultivation.

ASPECTS OF THE DESERT

This upside-down-carrot tree, this what-is-it tree is really *Idria columnaris,* the Cirio or Boojum Tree. It is related to our Ocotillo. Although it is a native of Baja California, Mexico, it grows well in our Arizona desert, and there are nine of these oddities in the Garden.

HESPERALOE NOCTURNA Gentry — Fam. LILIACEAE

Hesperaloe nocturna is a new species described by Dr. Howard Scott Gentry in the July 1967 issue of MADRONE, Vol. 19, No. 3. It is acaulescent and caespitose in habit, forming a large clump to 1.5 meters tall and 2 meters broad. The narrow lienar leaves are arcuate-spread, measuring to 1.5 meters in length and to 2 cm. in width. These are striate-ridged, concave on the upper side and rounded beneath, with finely filiferous margins. Leaf tips are acicular and pungent at first, later becoming frayed. A simple or sparingly-branched raceme makes up the slender arching inflorescence rising to 2 meters in height.

Flowers are nocturnal with reflexed tepals (divisions of the perianth) during antheis. Outer tepals are pink to lavender externally and white on the inner surfaces. A single flower may attain a length of 30 mm. with a short tube of 3 mm. or less. Segments are appressed except during anthesis. The short stout style at 8 mm. is equal to the ovary in length. Stigma is capitate. Anthers are large, 8 to 9 mm., equal to the filaments which are attached to the base of the tepals. The ovoid to oblong capsules measure to 40 mm. in length and 45 mm. in width and contain large black seeds 8 by 11 mm. in size.

Hesperaloe nocturna has a very limited known distribution in northern Sonora, Mexico. Type locality is 15 miles southeast of Magdalena, Sonora, by the Baviso Mountains, at an altitude of about 3280 feet (1000 meters). This site is at the eastern limit of the Sonoran Desert in this area, and the species may have an extended range to the east and south of the present known locality.

Since there are few plants of this species at present in cultivation, it may require quite a few years for it to become established in widspread ornamental use. Its application in landscaping would be much the same as that for **Hesperaloe parviflora** except that it generally attains a greater size and would require a larger planting area.

Seedling growth rate of **Hesperaloe nocturna** is more rapid than that of **H. parviflora** and the removal of offsets from large clumps has proved less difficult. Specimens growing at the Desert Botanical Garden have thrived in full sun on well-dained soil, but require supplemental water in this area of low rainfall.

REFERENCES:

Gentry, H. S.—MADRONO, Vol. 19, No. 3, July 1967.
Trelease, W.—The Yucceae. Missouri Bot. Gard. Rep. 13: 27-31.

DBG Photo

Fruit and seeds of *Hesperaloe nocturna*. Ruler is in centimeters and inches.

DBG Photo

One inch wide white flowers of *Hesperaloe nocturna* photographed by your editor May 1964 at Cucurpe, Sonora, accompanied by cactomaniac Rod McGill and Doyle Noel, inspector with the U.S.D.A. border station, who called our attention to this plant in 1963.

DBG Photo

Six foot tall branched raceme inflorescence of *Hesperaloe nocturna.*

DBG Photo

Habitat of *Hesperaloe nocturna* showing a five foot wide clump and unbranched inflorescences six to 8 feet tall arising from a clump farther down the grassy hillside. Doyle Noel in foreground.

MEMBER'S GARDEN — V

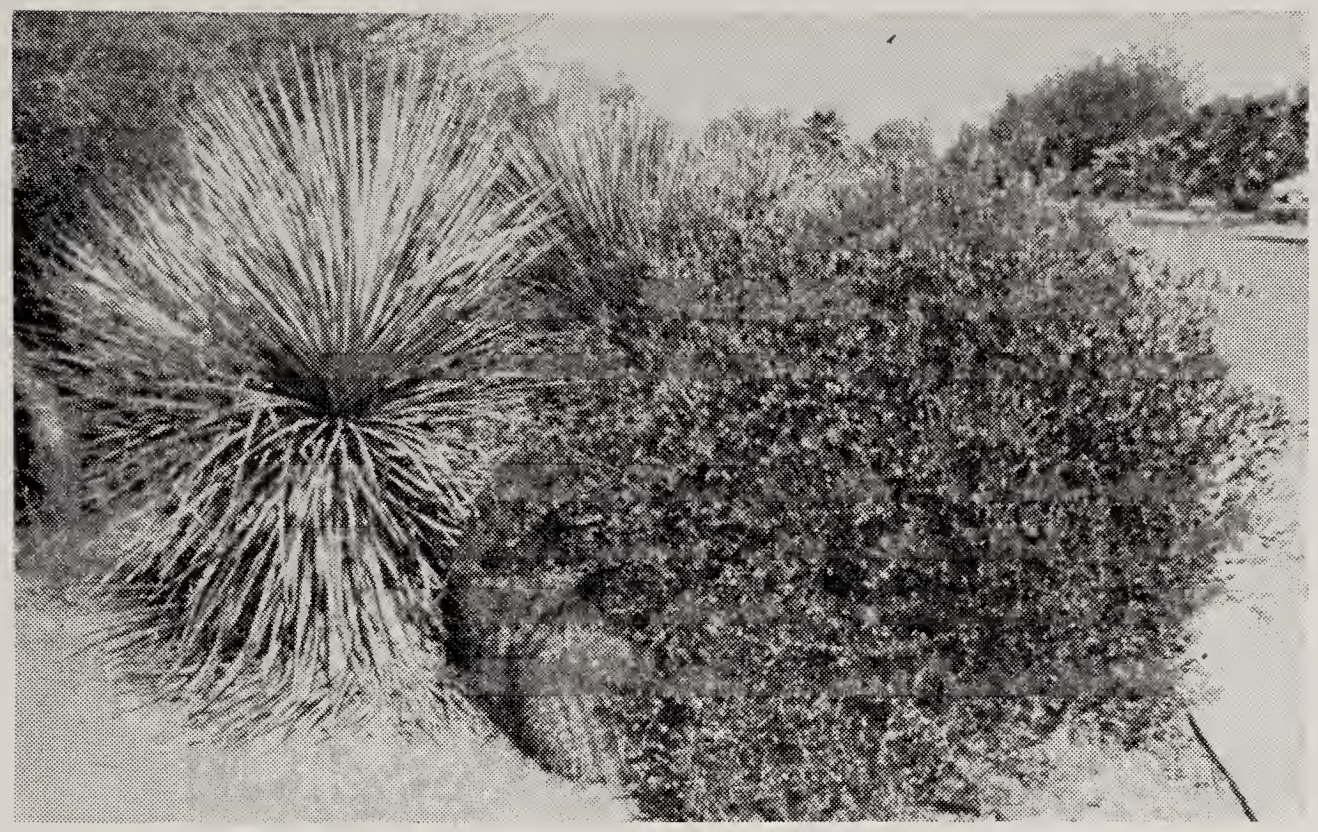
DBG Photo

When Dr. and Mrs. Clifford Schroeder, Tempe, Ariz., moved into their new home about 1958 they decided to have a desert lawn and have been quite successful in propagating new plants introduced to the valley by the Garden.

The large tree overshadowing the roof is a Sonoran Palo Verde *Cercidium sonorae* raised from a seedling of seed collected by the Garden near Alamos, Sonora in 1959.

DBG Photo

A well spaced grouping of desert succulent plants and shrubs growing in decomposed granite soil.



DBG Photo

An effective property line corner planting using Silver Yucca *(Yucca rigida)*, Compass Barrel *(Ferocactus acanthodes)* and Jojoba *(Simmondsia chinensis)*.

DBG Photo

Another corner grouping of Brittle Bush *(Encelia farinosa)*, Red Yucca *(Hesperaloe parviflora)* and Soft-leaved Yucca *(Yucca recurvifolia)*.

Dr. C. Schroeder flowered this *Yucca rigida* in four years. This is the only record of flower in U.S.A. and is another Garden introduction.

NOVEMBER GARDEN EVENTS

Thurs.	2nd	LECTURE—Arizona Cacti	3 P.M.
Sun.	5th	LECTURE—Arizona Wildflowers	3 P.M.
Tues.	7th	CACTOMANIACS	8 P.M.
Wed.	8th	CLASSES—Deserts and their Plants	3 & 8 P.M.
Thurs.	9th	LECTURE—Arizona Trees and Shrubs	3 P.M.
Sat.	11th	NATURE TRIP	9 A.M.
Sun.	12th	LECTURE—Arizona Birds and Animals	3 P.M.
Wed.	15th	CLASSES—Desert Succulent Plants	3 & 8 P.M.
Thurs.	16th	LECTURE—Arizona Scenics	3 P.M.
Sun.	19th	LECTURE—Unusual Plants	3 P.M.
Tues.	21st	Arizona Orchid Society	8 P.M.
Wed.	22nd	CLASSES—Culture of Desert Succulent Plants	3 & 8 P.M.
Thurs.	23rd	LECTURE—Cacti in Flower	3 P.M.
Sun.	26th	LECTURE—Mexican Cacti	3 P.M.
Wed.	29th	CLASSES—Identification of Desert Trees & Shrubs	3 & 8 P.M.
Thurs.	30th	LECTURE—Arizona Cacti	3 P.M.

Huisache, S.L.P., Mexico, habitat of the Devil's Finger hedgehog *(Echinocereus pentalophus)*.

SAGUARO LAND BULLETIN

DESERT BOTANICAL GARDEN of ARIZONA

Vol. XXI December, 1967 No. 10

Season's Greetings

from

all the Staff

REG MANNING

SAGUAROLAND BULLETIN

Published and owned by the Arizona Cactus and Native Flora Society, sponsore of the Desert Botanical Garden of Arizona, P. O. Box 5415, Phoenix 85010. Saguaroland Bulletin attempts to promote the Garden and to provide information on the desert plants and their culture. Subscription $5.00 per year, the subscription including active membership in the Society and the Desert Botanical Garden. Issued 10 times a year.

W. HUBERT EARLE, Editor
LILLIAN DIVEN, Associate Editor

Volume XXI | December, 1967 | No. 10

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GARDEN OPEN DAILY 9 A.M.—5 P.M.
Including Week-ends and Holidays

Editor's Notes

With each step in construction we see more and more clearly how the new library wing will enhance the Garden. By December 1 the painting will be done and the tile roofs put on both the library porch and its extension. Our Board authorized an extension of the library porch to swing around and cover the south wall of the old building, thus tying new and old together in an attractive and useful way. Bookcases and library cabinets will be going in at the beginning of the month, and all indications are that we will be able to move in by the contracted date of December 16.

We have already received several checks for furniture for the new wing and would welcome more contributions, which are of course tax deductible and may be made now in 1967 or in 1968.

Would you like to donate a desk, a chair, a file case to the new Library and offices? Total cost of furnishings is about $2500 for steel, $3000 for wood. The Garden has some old equipment that could be used as part of the necessary furniture, but many members feel that now is the time to put all new furniture in our new wing rather than do it piecemeal, and we have to admit that the old desks would more than show their age in new surroundings. "Your" chair or table will be tax deductible, as you know.

Approximate cost of the various items is as follows: 2 rectangular library tables, $235 each. 12 library chairs, $20 each. Round library table, $160. Dictionary stand, $40. Librarian's desk, $180. Librarian's chair, $40. Display case, $375. Library file, $135.

Office desk, $180. Office chair, $50. Office table, $140. 6 conference chairs, $50 each. '

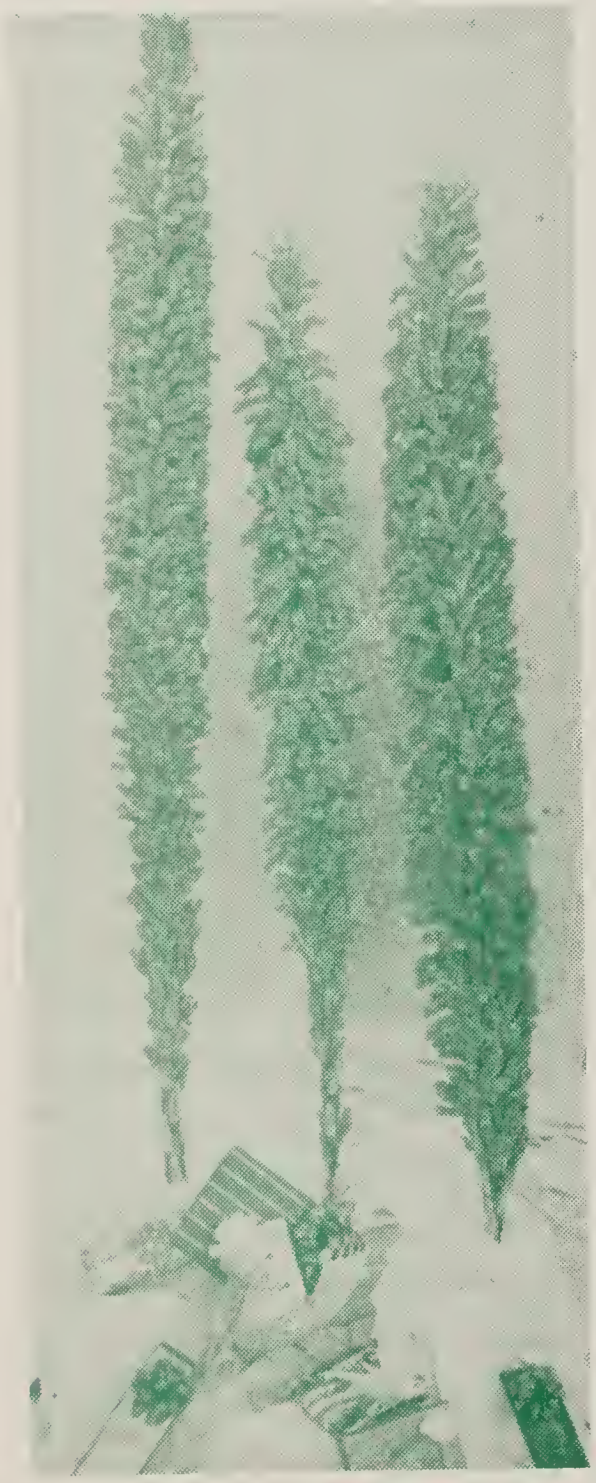
Secretary's desk with L-extension, $230. Secretary's chair, $40. Secretary's table, $85. Secretary's file cabinet, $85.

Since the Library's bookcases and cabinets will be built of birch and walnut, the furniture will be either light walnut, if wood, or a neutral color, if steel, both with walnut-colored plastic laminate tops.

Christmas reminder: Our bookstore in the Visitors' Building is a Good Place to shop! Books, of course, and cactus jelly, bolo ties and pendants made from semi-precious stones or from a silvery metal with cactus designs, hand-woven rugs and place mats, kachinas and note paper, and some of the handsomest Christmas cards in town. Come and see.

Christmas at the Garden

This year our Desert Holidays decorations stand up (the Sotol below) and hang down (Agave at right). Thirteen-foot-long dried flower stalks of Sotol (**Dasylirion wheeleri**) were collected in the Superstition Mountains, cut down to the top seven feet, and grouped inside and outside the Visitors' Building. Their natural straw color is sprinkled with "snow," and gay wrapped boxes surround each group.



DBG photos

Turn this picture upside-down and you will recognize a dried Agave stalk. We collected 12-foot stalks of **A. parryi** from the Mogollon Rim near Prescott, cut off five-foot-long tops and sprayed them dark green. They are hung top-down from the beams of the Auditorium, snow-coated, and carry bright ornaments at the tip of each branch. We know we say the same thing each year, but we do think this year's decorations are the handsomest ever — and we wonder how we can top them next year.

CYLINDROPUNTIA LEPTOCAULIS — CACTACEAE

Desert Christmas Cholla

The fruit on this slender cholla ripen in November and remain on the plant until February. They are scarlet and quite understandably give **Cylindropuntia leptocaulis** its common name.

C. leptocaulis is a compact, bushy plant, two to three feet high when growing in the open, but climbing almost like a vine to eight feet or more when it finds support and protection in mesquite, ironwood or palo verde trees.

Stems are three-sixteenths inch in diameter and about six inches long, smooth, dull green and pencil-like, readily detached. The spines are long, usually one to two inches, and are white with tan sheaths. The areole from which the spines rise is woolly. There is a great variation in length of spine in plants of this species, leading some to describe different varieties of **C. leptocaulis.**

The flowers, green to yellow, are one-half to three-quarters inch wide, and appear in May or June. The small globular scarlet fruit (sometimes yellow) is somewhat juicy and is relished by the birds. The Papago Indians of the Gila River Reservation still collect the fruit and make jam with it.

C. leptocaulis is a woody plant and does not propagate readily from cuttings. It is susceptible to the cochineal bug, and is not a handsome plant. For these reasons, among others, desert nurseries rarely carry it. Desert gardeners should follow a regular spraying program to combat the cochineal bug.

TYPE LOCALITY: Northern Mexico.

DISTRIBUTION: Eastern Mojave and Yuma Counties in Arizona to southern New Mexico, at altitudes of from 200 to 3000 ft.

REFERENCES:

Benson, L., Cacti of Arizona
Britton & Rose, The Cactaceae
Earle, W. H., Cacti of the Southwest.

DBG photo

"Pencil" stems of *Cylindropuntia leptocaulis,* with spines which are unusually long in proportion to the rest of the plant. Stems break off easily.

Construction at the Garden

The Archer House, built in 1952 and named in honor of Mrs. Louella Archer who contributed a great part of its cost to the Garden, has been occupied by your editor since that time. A two-bedroom concrete block structure, it was equipped with air-conditioning in 1958 (making it a bit more comfortable during our desert summers), and this past summer a much-needed carport was added, based on a design contributed to the Garden by Donald Bauer several years ago. The carport was built mainly by the staff, although the block work and electrical wiring were let on contract.

The top picture shows the carport, the low terrace wall at left and breezeway at right, all of which combine to make the house more attractive and liveable. The carport, on the west side of the house, is twenty-four feet wide and contains two large storage rooms. Ornamental iron will shortly be installed between the concrete panels and along the breezeway. We hope to "black-top" approaches and adjacent areas next year.

Landscaping will be completed this month. The low wall extending the house's front terrace is 45 feet long, and plants will be placed along it, both shrubs and annuals.

The strong horizontal line of the new carport-breezeway roof extends the roof line of the house, and we are amazed at how much bigger it makes the house look. The whole addition enhances the appearance of the house very much and, incidentally, the shade it gives will make the two west bedrooms a lot cooler next summer. (A "before" picture is shown below.)

ASPECTS OF THE DESERT

Not often, but once every five or six years you can see snow capping saguaros and adorning cholla in the deserts as low as 2000 ft. altitude. It doesn't last more than a day, but it gives the desert another memorable aspect.

MEMBER'S GARDEN—VI

Mr. and Mrs. Robert E. Dozier, once winter visitors to the Valley, decided two years ago to stay, bought a mobile home, and placed it on a wedge-shaped lot in north Phoenix on a curved street at the foot of a hill. The Doziers put their home at the narrow front end of the lot and have desert-landscaped the rest with cactus, succulents and desert shrubs, crushed white and red rock, brick paths and patio, and a redwood fence. The brickwork (done by Mrs. Dozier herself), the "mulch" of rocks, and the careful arrangement of the plants, beds and paths, make this a minimum-care, maximum-enjoyment garden where the Doziers can sit in the warm sun on Christmas Day and congratulate themselves, as they should.

DBG photo

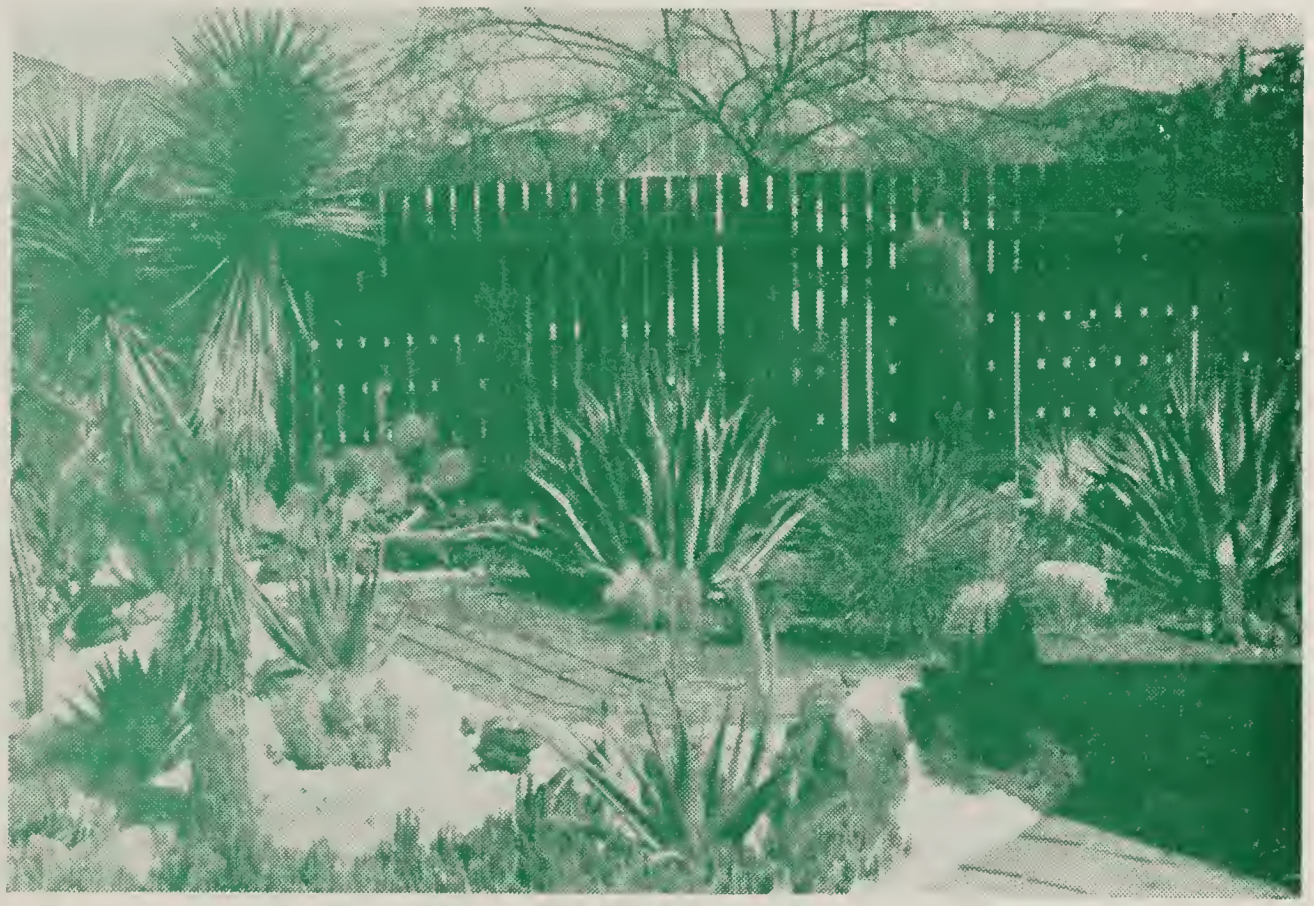
Grey brittle-bush against redwood, cactus in red granite soil. Patio narrows to a path to the small hobby and storage room.

DBG photo

Textures are important in a small garden, as are proportions. The agave bed shown here is a good example of careful planning.

DBG photo

Crushed red rock is the "lawn" surrounding the Dozier home, here seen from the rear, looking toward the street and nearby hill.



DBG photo

The bed in the foreground is topped with crushed white rock, contrasting pleasantly with plants, brick and palo verde tree.

CYLINDROPUNTIA TUNICATA — CACTACEAE

Mexican Cholla

Cylindropuntia tunicata (Lehmann) Link & Otto, Backeberg & Knuth was first described by Lehmann, 1827, in **Seminar of Horticulture**, Hamburg, Germany as **Cactus tunicatus**, then Link & Otto placed it as **Opuntia tunicata** in 1837, and Backeberg & Knuth set it up as **Cylindropuntia tunicata** in 1935.

This has been a confusing plant to observers for over a hundred years because of its various forms in its native habitat and its much more various forms in cultivation.

It is a low plant, spreading from the base and forming wide clumps up to four feet in diameter with a woody central trunk, yet it also may be under two feet tall with many interlaced lateral branches. Its globular-to-narrow-oblong four to six inch tuberculate stems are easily detached and are covered with many closely set reddish spines covered with silvery-white papery sheaths. These spines are quite painful to passing animals, who quickly learn to skirt the spiny plants.

Small yellow flowers about one and a half inches in diameter appear in April and May, followed by one-inch-long naked yellow globose fruits.

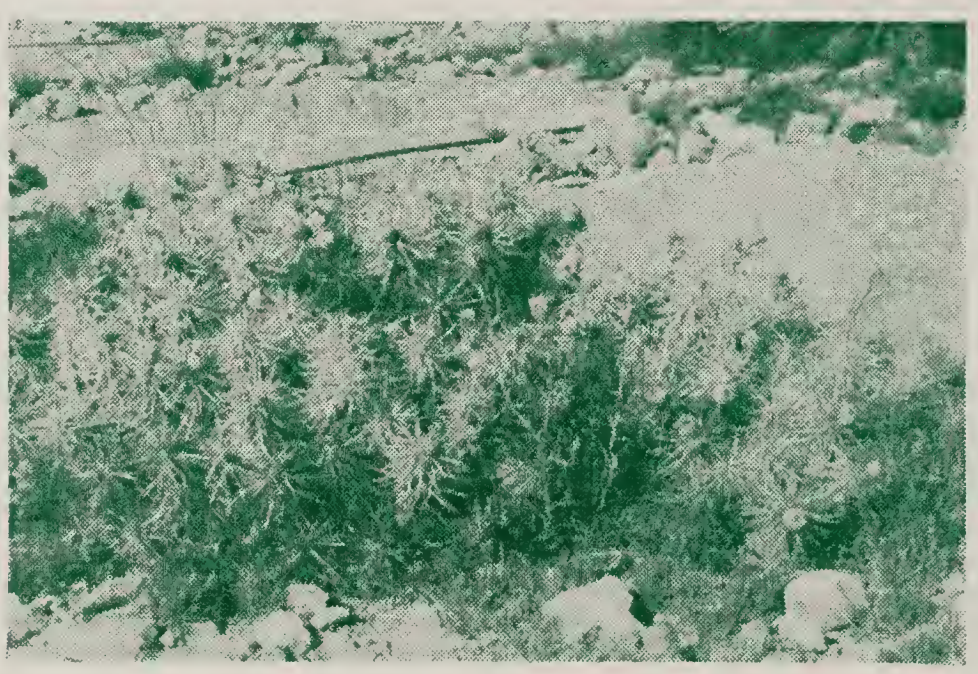
This plant would never become a horticultural favorite, yet it is used quite extensively in Zimapan, Hidalgo, (55 miles north of Pachuca) on the tops of walls, bordering homes, and effectively discouraging trespassers.

Type locality: Mexico

Distribution: Central Mexico, Ecuador, Peru and northern Chile.

REFERENCE:

Britton & Rose, CACTACEAE



DBG photos

C. tunicata photographed near San Roberto, N. L., northeastern Mexico. Above, right, is close-up of spines and fruit.

NOLINA MICROCARPA Wats. Fam. LILIACEAE

SACAHUISTA
BEAR-GRASS

Nolina microcarpa is a low-spreading, coarse-grass-like, acaulescent shrub with the basal rosette consisting of numerous long and narrow clustered leaves. These are narrowly linear, channeled above and keeled below, and measure 6 to 12 mm. in width and to one meter in length. Leaf margins are not spiny, but are serrulate with minute teeth and the leaf tip is frayed. Flowering occurs in May, June and July, Flowers are very numerous in a terminal open panicle with an elongate stalk. The inflorescence attains a height of up to one meter. The individual flower is very small, the sepals and petals being about 2 mm. in length. Stamens number six, the anthers being borne on short filaments. The style is very short. Fruit is a thin-walled papery capsule 4 to 5 mm. long and 6 to 8 mm. wide, having three cells and three membranous wings. It is subglobose in shape and moderately inflated. There is a single, light brown, finely wrinkled seed in each cell. In shape, the seed is globose to obovate attaining a diameter of 2.5 mm. and a length up to 3.5 mm. It becomes exposed by dehiscence of the fruit.

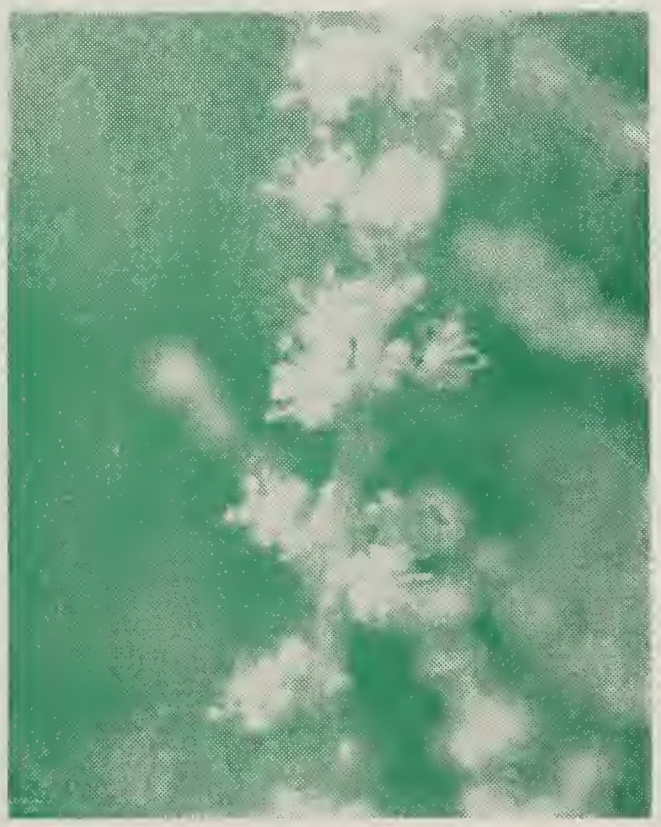
Bear-Grass extends from northwestern Arizona through central and southeastern Arizona east into western Texas and south into northeastern Sonora and northern Chihuahua, Mexico. In Arizona it is found in the Upper Sonoran Zone at elevations ranging from 900 to 2,000 meters (3,000 to 6,500 ft.) and is recorded in all counties but Yuma County. It grows on gravelly or sandy well-drained soils in sites having open exposures on mesas and mountain slopes. The type is recorded as having come from southern Arizona.

Nolina microcarpa is seldom used in desert landscaping since it is a plant of the chaparral and pine zones and not adapted to low desert situations. The inflorescence is not attractive as is that of **Nolina bigelovie** and the plant form has little design application. Its value to a desert garden would be only that of a seldom cultivated species.

Germination and growth rate are both slow and the plant will thrive only on well-drained soils, preferably on inclined slopes. Supplemental watering will be required during extended periods of drought.

REFERENCES:

Benson and Darrow — The Trees and Shrubs of the Southwestern Deserts
Kearney and Peebles — Arizona Flora
Shreve and Wiggins — Vegetation and Flora of the Sonoran Desert



DBG photo

Small flowers of *N. microcarpa*. Notice the exserted stamens.

DBG photo

Nolina microcarpa in its natural habitat. The over-all height of the plant is about seven feet. Elevation in this locality is approximately 3600 feet.

GARDEN ACTIVITIES IN DECEMBER

Sun.	3rd	LECTURE—Arizona Wildflowers	3 P.M.
Wed.	6th	CLASSES—Culture of Desert Trees & Shrubs	3 & 8 P.M.
Thurs.	7th	LECTURE—Arizona Trees & Shrubs	3 P.M.
Sat.	9th	NATURE TRIP	9 A.M.
Sun.	10th	LECTURE—Arizona Birds & Animals	3 P.M.
Wed.	13th	DESERT FIELD TRIP for Afternoon Class	9 A.M.
Thurs.	14th	LECTURE—Arizona Scenics	3 P.M.
Sat.	16th	DESERT FIELD TRIP for Evening Class	9 A.M.
Sun.	17th	LECTURE—Unusual Plants	3 P.M.
Thurs.	21st	LECTURE—Cacti in Flower	3 P.M.
Sun.	24th	LECTURE—Mexican Cacti	3 P.M.
Thurs.	28th	LECTURE—Arizona Cacti	3 P.M.
Sun.	31st	LECTURE—Arizona Wildflowers	3 P.M.